Passive Alcohol Sensors:

A Study Focusing on their Use, Performance, Effectiveness, and Policy Implications for Traffic Enforcement

Prepared For:

Governor Scott McCallum

By:

WISCONSIN DEPARTMENT OF TRANSPORTATION

December, 2002

***Passive Alcohol Sensors*: A Study Focusing on their Use, Performance, Effectiveness, and Policy Implications for Traffic Enforcement**

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*Also, special thanks to **John Nordbo**, WisDOT Office of Organizational Development Services (OODS), (Moderator for Focus Groups), **Denise Olson**, Analyst, who assisted in the research for Chapters 1 and 2, **Paul Nilsen**, Office of General Counsel providing legal review, **Jim Condelles**, Office of Public Affairs, **Janet Hauke**, Program Assistant, OODS.*

Dec. 20, 2002

Governor Scott McCallum
22 East State Capitol
Madison, WI 53707

Dear Governor McCallum,

On behalf of the Wisconsin Department of Transportation, it is with great pleasure that I submit the results of our study, including findings and recommendations, on the effectiveness of passive alcohol sensors for use in traffic law enforcement. The Division of State Patrol, the Division of Transportation Investment Management, and the Office of General Counsel worked together with representatives of the law enforcement and legal communities and the general public to provide a comprehensive view of passive alcohol sensors.

Our study involved extensive dialogue with legal and law enforcement focus groups, an exhaustive review of existing literature on passive alcohol sensors, laboratory and user tests of passive alcohol sensors, a survey of public perception on passive alcohol sensors, and a compilation of judicial and privacy advocacy group opinions on the use of passive alcohol sensors. Within the final report are included the study findings regarding legal aspects of passive alcohol sensors, implementation factors for law enforcement, effectiveness of the devices, citizen concerns, and legislative considerations for Wisconsin.

Thank you for recognizing the need for such a study and providing the Wisconsin Department of Transportation the opportunity to accomplish this task. Each study participant gave their time, commitment and expertise to the process, providing diverse perspectives and genuine concern, to create these effective and attainable results.

Sincerely,

Tom Carlsen
Secretary

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Executive Summary

Governor's Mandate

This study is being conducted at the request of Governor Scott McCallum. On August 30, 2001, Governor McCallum signed 2001 Wisconsin Act 16 (the budget bill) into law.

Previous to enactment, language included in Act 16 would have banned the use of passive alcohol sensors in Wisconsin. Governor McCallum vetoed this language (Section 2882m) and directed that the Wisconsin Department of Transportation study the effectiveness and use of passive alcohol sensors including consideration of the legal issues pertaining to their use. In his veto message, Governor McCallum raised two issues about passive alcohol sensors that he felt should be addressed: (1) concerns regarding the accuracy of the devices, and (2), ensuring the consideration of privacy rights"

" I am vetoing this section because the use of these sensors may assist law enforcement personnel from deterring persons from driving while intoxicated or under the influence of alcohol. However, I do have concerns pertaining to the accuracy of these instruments and to ensuring that privacy rights are considered. Therefore, I am requesting that the Department of Transportation work in cooperation with other agencies and law enforcement agencies to conduct a study on the effectiveness and use of these devices. Furthermore, the policy should be developed with greater input from law enforcement agencies and the public and be addressed in separate legislation."

- **Governor Scott McCallum comments from his veto message, 2001 Wisconsin Act 16, Section 2882m**

Purpose of this Report and Intended Audience

This report summarizes the legal, enforcement and technical research conducted for this study as well as information gathered through the focus groups and survey research that was used to solicit opinions, perceptions and other ideas with respect to the use and effectiveness of passive alcohol sensors and the legal and policy implications associated with their use.

The focus of this study is on the use of passive alcohol sensors in ***traffic enforcement***. However, non-traffic enforcement (e.g., to detect alcohol use in schools, the workplace and at large public gatherings such as music concerts) is also reviewed and discussed to a lesser degree.

The results of this report will be provided to the Governor, the legislature and any other interested parties and citizens. The purpose of this study is to meet the Governor's charge, which includes providing meaningful input from law enforcement

as well as the public, and to provide useful information for informing policymakers on these issues.

Report Objectives

- To provide a general description of passive alcohol sensors including a technical description of how they operate;
- To provide a broad analysis regarding the use, performance and effectiveness of passive alcohol sensors based on literature and laboratory studies;
- To identify how passive alcohol sensors have been used as a traffic enforcement tool both nationally and internationally;
- To identify how passive alcohol sensors have been used in Wisconsin as a traffic enforcement tool;
- To identify what factors influence the use of passive alcohol sensors by Wisconsin law enforcement;
- To identify the current legal issues regarding the use of passive alcohol sensors focusing on the issues of privacy and legal use in Wisconsin.

Study Methodology

The Wisconsin Department of Transportation, Bureau of Transportation Safety (BOTS), in collaboration with the Division of State Patrol (DSP), recommended that the study be conducted in 4 phases (see schedule below). This final report summarizes all the issues and information collected from the four phases.

Passive Alcohol Sensors: A Study Focusing on their Use, Performance, Effectiveness, and Policy Implications

Phase I:	Technical Analysis/Literature review (Spring, 2002)
Phase II:	Legal Analysis/Literature Review (Fall, 2002)
Phase III:	The Wisconsin Experience: Analysis of Public and Focus Group Perceptions of Passive Alcohol Sensors (Fall, 2002)
Phase IV:	Final Report: Analysis and Presentation of Findings (December, 2002)

WisDOT Project Committee Involvement: WisDOT's Committee (please see inside cover for listing of staff members) met in December 2001 to scope out the Governor's charge and parameters for conducting the study. In February 2002, an outline and time schedule were developed covering the four project phases. Project staff reviewed the research results provided under Phase I (technical review) and Phase II (Legal Review) making suggestions where appropriate. During Phase III, project staff collected and summarized the results from the two focus groups that were convened in September 2002 and the Omnibus Survey conducted by the University of Wisconsin Survey Center collecting public perceptions on the use of passive alcohol sensors. Project staff convened in October 2002 to discuss the first draft of the report and the results from the laboratory analysis that was conducted during Phase I. In November, 2002, two presentations were made before: (1) WisDOT Division Administrators and (2), the WisDOT Office of Public Affairs, the WisDOT Office of Planning and Budget and Deputy Secretary, Pat Goss.

The following identifies specific activities that were conducted under the four phases for this study:

Literature Review:

During Phase I, a comprehensive literature search was conducted utilizing numerous electronic databases available on the World Wide Web and through the University of Wisconsin-Madison in addition to utilizing resources available including information from passive alcohol sensor manufacturers on the World Wide Web. Information was also collected during telephone and email discussions with several Wisconsin law enforcement officers familiar with passive alcohol sensor technology.

Laboratory Analysis of Passive Alcohol Sensors:

An evaluation of passive alcohol sensing devices was undertaken by the Division of State Patrol Chemical Test Section to determine the performance of the devices in both laboratory and human drinking subject settings (controlled dosing). Part of the laboratory analysis included open containers of various mixed alcohol beverages to test the responses from the devices. Six manufacturers representing those who market passive alcohol sensors in the United States including Wisconsin were identified and contacted to determine their willingness to participate in the study. All manufacturers agreed, loaning the Chemical Test Section a single device for the length of the study. A more detailed description of the research and subsequent findings can be found in Chapter 3 of this report and in Appendix A.

Review of Case Law and the Wisconsin State Statutes:

During Phase 2, a comprehensive search of the Wisconsin State Statutes and the Wisconsin Department of Transportation's Administrative Rule Trans 311 was conducted focusing on statutory authority and the current legal standing of passive alcohol sensors in Wisconsin. In addition, a comprehensive review of Wisconsin and national case law was conducted reviewing legal and law enforcement opinions

involving the Fourth Amendment to the U.S. Constitution with focus on search and seizure issues and exceptions to the Fourth Amendment. This included applicable cases from the Wisconsin Supreme Court, the U.S. Supreme Court as well as the lower courts.

***Focus Groups**:*

During Phase 3, two focus groups, a "Law Enforcement Group" and a "Legal Focus Group" were created. These two focus groups conducted separate meetings, held on September 4, 2002 and September 11, 2002 respectively, to discuss passive alcohol sensor devices. The purpose of the focus groups was to obtain greater input from both law enforcement personnel, and legal professionals on the use of passive alcohol sensors for traffic enforcement in Wisconsin and focusing on issues related to ease of use, implementation, legal issues and privacy concerns.

The Law Enforcement Focus Group was composed of law enforcement personnel from throughout the state - representatives from sheriff's departments, police departments, the DNR and the State Patrol (a list of the participants and the questions which were asked can be found in Appendix C of this report). Participants were asked a series of questions focusing on the following general issues:

- How passive alcohol sensors have been used by Wisconsin Law Enforcement agencies.
- Their performance/effectiveness as a tool for enforcement.
- Privacy issues such as whether these devices represent an infringement of personal privacy protections (unreasonable search and seizure) covered under the fourth amendment.
- Their impact in general on the enforcement of impaired driving laws.

Each participant was afforded the opportunity to give their own opinions on these issues. Discussion among all participants was also encouraged. The results of the discussion are summarized in Appendix C of this the report and are also quoted throughout this final report.

The Legal Focus Group was composed of defense and prosecuting attorneys, public defenders, a municipal judge, a privacy advocate/consultant, and a law student who has conducted research on legal issues pertaining to the use of passive alcohol sensors (a list of participants the questions which were asked can be found in Appendix C of this report). Participants were be asked a series of questions focusing on the following general issues:

- Privacy issues such as whether these devices represent an infringement of personal privacy protections ("unreasonable search and seizure") covered under the Fourth amendment as applicable to traffic stops.

- The impact of passive alcohol sensors on OWI arrests and convictions.

Each participant was afforded the opportunity to give their own opinions on these issues. Discussion among all participants was also encouraged. The results of the discussion are summarized in Appendix C of the report and are also quoted throughout this final report.

"Omnibus Survey":

During Phase 3, survey information was compiled from the 2002 Department of Transportation Omnibus Study, conducted by the University of Wisconsin Survey Center (UWSC) for the Wisconsin Department of Transportation.

The Omnibus Survey interviewed 750 randomly selected men and women in households throughout the State of Wisconsin, contacted by telephone, to gather residents' opinions on a wide range of state transportation issues. Three questions pertaining to passive alcohol sensors were included within the survey. Only licensed drivers were interviewed, so households that included no licensed drivers were screened out and the interview was terminated.

Interviewing for the 2002 Department of Transportation Omnibus Study began on July 23, 2002, and ended on September 4, 2002. The UWSC completed at total of 770 interviews at an average length of 18.07 minutes per interview (more detailed information about the Omnibus Survey and the three questions pertaining to passive alcohol sensors can be found on Page 42 of this final report).

Findings

- Passive alcohol sensors are designed to only provide a qualitative not quantitative assessment of the presence of alcohol.
- Although passive alcohol sensors are technically similar, they are manufactured in different shapes and sizes.
- Passive alcohol sensors have been used on a limited basis in Wisconsin to assist in traffic law enforcement.
- Passive alcohol sensors can be used by law enforcement and others for non-traffic applications.
- Existing case law and legal opinion have not identified a conflict between the correct use of passive alcohol sensors by law enforcement for traffic enforcement and the 4th Amendment to the U.S. Constitution.
- The use of passive alcohol sensors raises concerns about privacy rights and compliance with laws regulating searches and seizures.

- Many participants of the law enforcement and legal focus groups indicated that passive alcohol sensors should not be banned for use in traffic law enforcement in Wisconsin. Some suggested that banning the devices would not serve a constructive purpose and the devices are another tool that should be made available for use in accordance with individual law enforcement agency and community needs.
- The public's perception of law enforcement use of passive alcohol sensors may provide a deterrent to impaired driving.
- The performance of passive alcohol sensors during testing was variable and even under laboratory conditions these devices did not approach the degree of dependability inherent in the qualitative devices that are already approved for use in Wisconsin. This lack of dependability was particularly evident during the testing of drinking subjects.
- Due to the nature of the passive alcohol sensors' sampling methods, the source of any detected alcohol cannot be known with complete certainty.
- The determination of "effectiveness" of passive alcohol sensors is measured by various standards, including:
  a) accuracy of each device as indicated by scientific testing;
  b) use of the devices as a public deterrence to impaired driving;
  c) cost of the devices for law enforcement in relation to the cost of other impaired driving detection tools;
  d) ease of implementation of the devices into law enforcement practices and policies.
- Passive alcohol sensors, like other technology, can be abused or used improperly by their operators resulting in information that could incorrectly characterize the drinking status of the driver/suspect.
- Research and data identified in Wisconsin studies do not indicate that the use of passive alcohol sensors influences the detection or conviction of alcohol-impaired drivers.
- Due to performance differences under varying environmental and weather conditions, there is a definite need for caution when considering the use of passive alcohol sensors for traffic law enforcement.

Chapter One:

Study Background and Description of Passive Alcohol Sensors

Chapter One: Study Background and Description of Passive Alcohol Sensors

Description of Passive Alcohol Sensors

Passive Alcohol Sensors are hand-held analytical devices used by law enforcement and other authorities to detect the presence of alcohol in the breath and air. For purposes of this study, the following definition will be used:

Passive Alcohol Sensor (PAS) – Defined

"Analytical device for the *qualitative* measure (presence or absence of alcohol, but not a specific quantity) of:

1) Breath-containing air surrounding a person or persons, e.g. the passenger compartment of a car **– OR –**

2) Ambient air about a micro-environment, e.g. the airspace immediately above a suspected alcoholic beverage."

Passive alcohol sensors are sometimes known colloquially as "sniffers" and are manufactured in various shapes. Unlike an evidential breath test device such as the Intoximeter EC/IR, a passive alcohol sensor cannot be used to measure how much alcohol is on a person's breath.

According to Voas[1], Honda Motor Company developed the original passive alcohol sensor in Japan. Although the actual date of origination was not found, the first studies appear to be in 1983. The original passive alcohol sensor was a baton-shaped flashlight that was twenty inches long and made of plastic. It weighed four pounds with batteries. Because it was sensitive to other chemical compounds found in the air, as well as expired air, it was not considered to be very useful.

Passive alcohol sensors come in many shapes and sizes. Though all passive alcohol sensors will share many basic features of the technology as described above, once marketed, passive alcohol sensors come in many shapes and sizes. Please see Appendix B that provides examples of different types of passive alcohol sensor devices. Several passive alcohol sensors resemble preliminary breath test devices (PBT). Most are gray or black in color, but two are a very visible yellow.

Some devices are not readily identifiable by the driver as an alcohol-detecting device. A model typically used by Wisconsin law enforcement agencies is the flashlight or

[1] Voas, RB. "Laboratory and Filed Tests of a Passive Alcohol Sensing System." Abstracts and Reviews in Alcohol and Driving 4(3):3-21 (1983).

baton-shaped passive alcohol sensor.[2] Other forms include clipboard-like devices and shapes that resemble small electronic devices.

Passive alcohol sensors share common characteristics, with portability being a universal feature. The units are designed to be hand held, weighing from ten to thirty two ounces and measuring from five to fourteen inches long, and are powered by batteries, either disposable or rechargeable. Most manufacturers recommend a 15-minute deprivation period (subject abstains from drinking or eating) prior to administering a test, but no mouthpieces are required for passive testing.

How a passive alcohol sensor operates. The general operation of a passive alcohol sensor consists of pointing or directing the sampling port of the device at a subject's mouth from a distance indicated by the manufacturer. Depending on the device, the operator instructs or encourages the subject to breathe, blow or speak at the device as the device takes an air sample. In a matter of seconds, the fuel cell analyzes the sample, providing a result in the form of either a numerical readout, lights indicating zero/low/high presence of alcohol, or a "P" (pass) or "F" (fail) indicating the absence or presence of alcohol.

Passive alcohol sensors operate at a range of ambient temperatures from a low of 0 - 32 degrees to a high of 104 - 105 degrees Fahrenheit. The sampling mechanism is most commonly a pump, or it can be a fan. Test results are obtained within seconds. Devices are ready for a subsequent test from two to thirty seconds after a negative air sample and from twenty seconds to two minutes after an alcohol-laden air sample is tested.

Calibration is generally required at least once a year, and according to the manufacturers, can be done by the user in most cases. Accuracy checks are recommended more frequently. The standard warranty is one year, parts and labor. See Appendix B for pictures of passive alcohol sensors and Appendix A for a chart of individual features.

Comparison to Other Breath Testing Technology. Passive alcohol sensors, preliminary breath tests, and evidentiary breath tests (EBT) (e.g. the Intoximeter EC/IR) all utilize fuel cell technology to detect alcohol. A fuel cell is a porous disk containing a solution that oxidizes ethanol into carbon dioxide and water, while releasing electrons. The electrons are present in proportion to the amount of ethanol present, allowing the fuel cell to perform as a linear sensing device.

The primary technical difference among passive alcohol sensors, PBTs, and EBTs lies in the manner in which a sample is taken for analysis. Passive alcohol sensors utilize either a pump or a fan to draw a sample of breath containing ambient air into the device for analysis. This relatively imprecise sampling mechanism allows only a

[2] The PAS devices resembling flashlights (i.e. PAS III) have been used by law enforcement in the following municipalities/counties: Dane County, Elkhart Lake, City of Green Bay, City of Manitowoc, City of Waukesha, Village of Whitefish Bay.

qualitative determination of alcohol present in a sample. In other words, passive alcohol sensors can only determine the absence or presence of ethanol in the air that was sampled. The source of the ethanol cannot be known with certainty.

PBTs improve on the sampling quality by requiring the cooperation of a willing subject to provide a sample. The PBT operator instructs the person to provide a deep lung or alveolar air sample for analysis by the PBT.

PBT sampling accuracy can be limited by cold ambient temperatures, and by an operator's judgment as to when the deep lung air has been sampled. Properly administered, a PBT eliminates the uncertainty as to ethanol source and can provide an excellent correlation to a person's true blood or breath alcohol concentration. Evidentiary breath tests completely solve the sampling problems inherent in the other devices. In Wisconsin, EBTs are placed in climate-controlled rooms and utilize electronic measures to determine when alveolar air has been produced from the subject and consequently, when a sample of their breath should be taken for analysis. EBTs are commonly used in research and forensic settings because of their excellent accuracy and reliability.

Regulation of Breath Testing Devices. The other major difference among these devices lies in how breath-testing devices are regulated under 343.306 and the related administrative code Chapter Trans 311. Although Wisconsin State Statutes do not specifically prohibit the use of passive alcohol sensors for traffic enforcement in Wisconsin, the Division of State Patrol, Chemical Test Section does not recommend the use of passive alcohol sensors for traffic enforcement. Therefore, passive alcohol sensors that are used in WI are not supported by the Chemical Test Section meaning any evaluation, calibration, accuracy checks, maintenance, repair, operator training or certification is the responsibility of the agency choosing to use a passive alcohol sensor for purposes of traffic enforcement.

Finally, passive alcohol sensors, PBTs and EBTs are significantly different in how much operator judgment can influence the results of the test. The Intoximeter EC/IR is microprocessor controlled. If any element of the device is functioning improperly, a test result will not be reported. Conversely, erroneous passive alcohol sensors results can be obtained in a number of ways, from not ensuring the fuel cell has been cleared of a previous alcohol laden sample before sampling another subject, to attributing a positive test from an environmental source to a subject's breath. The PBT lies somewhere in the middle in terms of operator control. For example, some PBTs require an operator to judge when alveolar air has been produced from a subject prior to taking a sample for analysis. The more latitude an operator has in obtaining a result, the more exposed the officer is to scrutiny and criticism of their technique.

Purchase and Maintenance Costs

Unit Costs

Passive alcohol sensor prices per unit range from approximately $300 to $700. See Appendix A for 2002 prices. Manufacturers may allow for a more favorable per unit cost if multiple units are purchased. For comparison, the Chemical Test Section provides law enforcement agencies with approved PBTs for $390 or $690 per unit, depending on the model.

Implementation Costs

Additional costs are associated with the purchase of a passive alcohol sensor. First among these is the cost of training. The Michigan Experience cited on Pages 61-63 of this document states that an 8 hour training period was required to ensure officers could operate, troubleshoot, and calibrate the passive alcohol sensor, train other officers, and were informed of associated legal issues and reporting requirements. Several of these functions are ordinarily provided by the Chemical Test Section for preliminary breath test (PBT) and evidential breath test (EBT) operators in Wisconsin. Officers receive 30- 40 minutes of training in order to permit them to use a PBT and 22.5 hours of instruction to operate an EBT, the Intoximeter EC/IR. In both cases, Wisconsin training allows an officer to simply operate a PBT or the Intoximeter EC/IR, not to perform the more complex functions that would be necessary to operate independently of the Chemical Test Section. Training costs would be an ongoing expense as employment turnover of trained officers occurs.

Passive alcohol sensors require periodic accuracy checks and calibration to maintain proper functioning. These services may be covered under warranty in the first year or can be purchased from the manufacturers. Cost estimates for these services can be obtained from the manufacturers. Alternately, law enforcement personnel can be further trained to perform these functions. For example, the Chemical Test Section trains specifically assigned law enforcement officers to calibrate their own agency's PBTs at periods not to exceed 60 days.

Replacement parts constitute an additional ongoing expense. Passive alcohol sensors may require replacement of batteries, fuel cells, light bulbs, and switches. Cost estimates for these parts can be obtained from the manufacturers.

Installation costs may be incurred to put chargers into vehicles for those devices that have rechargeable batteries. Some law enforcement officers already carry rechargeable flashlights in their vehicles, which may necessitate installation of an additional charger.

Finally, costs will be incurred by law enforcement agencies when devices approach their normal operational life span and require replacement with a newer model. Unit costs would be incurred of course, and invariably, new models have more or different

features that necessitate additional training of personnel. An example of this kind of expense is the cost incurred by the Chemical Test Section when the Intoxilyzer was phased out in 1999-2000.

Note that a more detailed discussion of passive alcohol sensors and their associated costs is included in Appendix B.

Current Use of Passive Alcohol Sensors Nationwide

Use of passive alcohol sensors in the United States. According to a review of national literature, it has been documented that passive alcohol sensors are used for multiple purposes. They are used in various capacities by law enforcement, schools and industries nationwide.

Sense Enhancement. One purpose of using passive alcohol sensors in law enforcement is to enhance the law enforcement officer's senses in the determination of a potential drunk driving violation as part of a traffic stop. Frequently, traffic officers must contend with odors in the environment (e.g., car exhaust, cigarette smoke, breath mints used by subjects in an attempt to cover up alcohol) that may interfere with their own ability to detect alcohol. A law enforcement officer's ability to distinguish between odors could become impaired if they have a cold or medical condition that diminishes their sense of smell. According to the literature, a passive alcohol sensor may help to assist an officer who is experiencing these problems.

Sobriety Checkpoints. In addition to using passive alcohol sensors for individual OWI traffic offenses, the devices have been used in some states in conjunction with motorist roadblocks or sobriety checkpoints. *Because alcohol sobriety checkpoints are prohibited by statute in Wisconsin*, passive alcohol sensors are not used as often in Wisconsin as compared to other states that utilize sobriety checkpoints.

Professional Drivers. Passive alcohol sensors have also been used to evaluate Commercial Driver License (CDL) operators, railroad engineers, airline pilots and commercial boat operators for alcohol use either during a traffic stop, as part of an accident investigation or before the professional begins her/his task.

Unconscious Individuals. Passive alcohol sensors are used to assess whether an unconscious person (e.g., at a crash scene), who is unable to give a breath sample may have been drinking.

Schools. Passive alcohol sensors have been used by law enforcement officers as an educational tool or part of presentations made to the public (such as in schools) on alcohol enforcement with the intent of deterring people from drinking and driving.

They are also used in schools to help reduce the prevalence of underage drinking and to maintain control over activities such as concerts and athletic functions by testing participants.

Industry. Usage in industry is to minimize alcohol abuse in the workplace (e.g., "zero tolerance policies") and to maximize the efficiency of employees.

Current Use of Passive Alcohol Sensors in Wisconsin

Although the Wisconsin State Patrol cannot recommend the use of any passive alcohol sensors, Wisconsin State Statutes do not specifically prohibit their use in Wisconsin. Therefore, passive alcohol sensors have been previously used for various reasons. The current uses of passive alcohol sensors were identified by Wisconsin law enforcement officers during the law enforcement focus group session conducted on September 4th, 2002 at the State Patrol District 3 Headquarters in Fond Du Lac.

To confirm a law enforcement officer's suspicions. Passive alcohol sensors are used not as the primary method to determine alcohol use, but as a tool to assist in confirming officer's suspicions. Their use does not replace the law enforcement officer's own capabilities. The devices would probably be used on an infrequent basis; the officer's own senses are usually sufficient for reasonable suspicion and probable cause.

Used as just one of many tools available to law enforcement. Arrests for OWI do not depend upon only one test. An Officer is obligated to perform the duties and necessary procedures related to an OWI traffic stop regardless of use of the device. Other necessary procedures are recognized by the courts as tools for law enforcement (e.g. Horizontal Gaze Nystagmus – HGN, standardized field sobriety test).

Cannot be used to determine whether a driver is impaired. A simple detection of alcohol does not measure impairment; further testing by field sobriety procedures and officer observations is required which includes both the law enforcement officer individual professional judgment and evidential testing (e.g., Intoximeter EC/IR).

To Deter Impaired Driving

- Used as an informational and educational/prevention tool for the public.
- Used as part of a media campaign to prevent OWI.
- Good public reminder of local traffic enforcement and OWI efforts
- Use of the devices is passed throughout a community by "word of mouth" indicating that any flashlight may be a passive alcohol sensor.
- Suggested that use of passive alcohol sensors in Milwaukee helped to reduce the number of alcohol-related crashes in the early 1990's.

To assist in crash investigations. Several of the group indicated that passive alcohol sensors can also be helpful as part of crash investigations.[3]

- Useful tool when officer is unable to use other devices (e.g. preliminary breath tester – PBT) on a crash victim due to person's injuries.

- Detection of alcohol from a "safe distance" from an injured and possibly dangerous individual (e.g. avoid bodily fluids).

To determine alcohol when other odors are present that masks the odor of alcohol. Passive alcohol sensors may be useful when other odors, such as body odors (e.g. uncleanliness, medical condition), prohibit the officer from being able to smell alcohol on the violator.

Enforcement of absolute sobriety laws.

- Determination of any alcohol use for teens/underage persons, and repeat offenders.

- Not currently authorized for use by Wisconsin State Patrol personnel when stopping commercial drivers.

[3] PAS has been used as part of crash investigations in Dane County to determine the presence of alcohol on unconscious subjects (March 8, 2002 email conversation with Sgt. Gordon Disch, Dane County Sheriff's Department).

Chapter Two:

The Current Legal Standing of Passive Alcohol Sensors, Legal and Law Enforcement Issues and Privacy Concerns

Chapter Two: *The Current Legal Standing of Passive Alcohol Sensors, Legal and Law Enforcement Issues and Privacy Concerns*

Introduction

The use of passive alcohol sensors raises a broad array of issues related to legal and law enforcement concerns as well as public policy issues that are often shaped by citizen perceptions. Therefore, this chapter will address not only the current legal standing of passive alcohol sensors in the United States and Wisconsin, but will also cover the following related considerations in the legal/law enforcement/policy arena:

- Privacy concerns regarding the use of passive alcohol sensors;
- The relationship of probable cause/reasonable suspicion to the use of the device;
- The covert nature of some passive alcohol devices;
- Admissibility of the results from a passive alcohol sensor in court;
- Use of passive alcohol sensors by law enforcement and their perceived costs and benefits;
- Usefulness of passive alcohol sensors to prosecution;
- Defense attorney arguments against passive alcohol sensors;
- The appropriateness of the results of passive alcohol sensors in expert testimony.

What is the current legal standing of passive alcohol sensors in the United States and in Wisconsin?

As of September 2002, no cases have been presented in the U.S. Supreme Court, the U.S. Appellate Courts or the Wisconsin State Supreme Court challenging the constitutionality of passive alcohol sensors. Therefore, no authoritative court ruling exists to approve or disapprove their use as a tool for law enforcement on the basis of the Fourth Amendment to the U.S. Constitution or the State Constitution. However, in the absence of a court opinion, this study applies constitutional principles and court decisions to gain some understanding of how these principles would traditionally apply to the use of passive alcohol sensors.

Wisconsin State Statutes do not specifically restrict the use of passive alcohol sensors. However, at this time, the Wisconsin State Patrol, Chemical Test Section does not recommend the use of passive alcohol sensor devices for traffic enforcement based on previous (1994) laboratory tests, which showed that a passive alcohol sensor device did not perform adequately.

The results from passive alcohol sensors cannot be used as evidence in court. Unlike an evidential breath-testing device (i.e., Intoximeter EC/IR), the results from a passive alcohol sensor cannot be used as evidence in court that a person is impaired due to alcohol consumption. A passive alcohol sensor can only be used as an indicator that alcohol is present in the area of a driver, which may lead the officer to do further testing utilizing a preliminary breath testing device (PBT), field sobriety tests or testing by an evidential breath testing device.

Why have passive alcohol sensors raised concerns with respect to privacy?

Some people in Wisconsin feel that passive alcohol sensors, or any other breath-testing device, represent an intrusion of personal privacy and that a law enforcement officer should have permission or probable cause to sample a person's breath. The privacy concerns include:

- Concerns that passive alcohol sensors constitute an "unreasonable search" during a traffic stop. Citizens have concerns that the use of technology allows law enforcement to probe further into areas for which they perceive an expectation of privacy.

- Concerns regarding the different types of technology that law enforcement in the U.S. currently possesses even if these technologies are not used in Wisconsin (e.g., thermal imaging devices, DNA sampling, photo-radar etc.). The concern focuses on the pervasive nature of the technology and what it might hold for future surveillance and enforcement. These people feel that in the broader, societal context, passive alcohol sensors represent one more piece of technology that law enforcement could use that would further erode individual privacy rights.

- Concerns regarding the covert use of some passive alcohol sensors by law enforcement. Passive alcohol sensors come in different shapes and sizes (for some examples, see Appendix B). Most passive alcohol sensors simply look like small electronic devices and were not designed to hide the fact that they are passive alcohol sensors. A few of these devices even require that the subject be instructed to blow (not into a mouthpiece, but passively) onto the device in order to obtain a reading. In these situations, the subject should be well aware that the device is in fact a testing device of some sort.

However, some passive alcohol sensors are manufactured to look like other objects (e.g., flashlights, clipboards etc.) to conceal their purpose and so are not readily identifiable to the subject/person being tested. Some citizens and privacy rights advocates will object to the fact that the passive alcohol sensor can be used in a covert manner to detect alcohol without the subject knowing that they are being tested.

What is the Fourth Amendment to the United States Constitution and how does this relate to passive alcohol sensors?

The Fourth Amendment to the U.S. Constitution protects every person in the United States from unreasonable searches and seizures. It states as follows:

> **"The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized."**
>
> **- Fourth Amendment to the U.S. Constitution**

The Fourth Amendment was written to encompass the reasonableness of search and seizures. One of the purposes of the Fourth Amendment is to afford persons with some reasonable expectation that their privacy will remain secure and unthreatened by governmental intrusion.

The Fourth Amendment, while establishing and setting forth the right of privacy and freedom from unwarranted search, also creates a need for balance with respect to traffic enforcement - the need to protect individual privacy rights versus the need to protect the public's interest through the vigorous enforcement of drunk driving laws. Therefore, with this balancing effort as the backdrop, one of the questions to be addressed by this study is as follows:

Does the use of passive alcohol sensors as a law enforcement tool compromise the constitutional guarantees during a search as intended under the Fourth Amendment?

The United States Supreme Court and the Wisconsin State Supreme Court have not yet considered any cases involving the constitutionality of passive alcohol sensors. Thus, the above question will be addressed by focusing on each of the following legal issues while noting the applicable legal theories and principles that apply.

Does a person have a "right to privacy" in their automobile and how does this relate to the automobile exception to the Fourth Amendment?

While the United States Supreme Court generally has sought to protect the privacy of individuals under the Fourth Amendment, it has also issued several decisions recognizing that citizens should have a *diminished* expectation of privacy when inside their motor vehicles. *In Carroll v. U.S., 267 U.S. 132 (1925),* the Court distinguished between the search of a home and the search of a vehicle and recognized that there is a diminished expectation of privacy in a vehicle[4]. In *Carroll*, the Court pointed to the fact that because a motor vehicle is movable, it can be moved out of reach of a search warrant rendering a search warrant ineffective. Therefore, warrant-less searches of motor vehicles are permitted as an exception to the Fourth Amendment. This principle is typically known as the "*automobile exception*."

The automobile exception is based on 2 justifications:

1. vehicles are readily mobile, and

2. drivers have a lesser expectation of privacy in their automobiles than in their homes or offices.

The *automobile exception* principle allows law enforcement officers to stop and search a vehicle if there is probable cause to believe that the vehicle contains evidence of a crime and there are exigent circumstances making it impractical to obtain a warrant before a search. Every part of the vehicle can be searched, including the trunk and closed containers.

In Wisconsin, this diminished expectation of privacy has been justified through court opinions by the inherent mobility of automobiles, the periodic inspection and licensing requirements of automobiles and the public nature of automobile travel where both its occupants and contents are in plain view.[5]

Outside of Wisconsin, in *Maryland v. Dyson, 527 U.S. 465 (1999),* the U.S. Supreme Court stated that the automobile exception does not require a separate finding of exigency. All that is required for a warrant-less search of a motor vehicle is a finding of probable cause. "If a car is readily mobile and probable cause exists to believe it contains contraband, the Fourth Amendment…permits police to search the vehicle without more."[6]

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[4] See also *Cardwell v. Lewis, 417 U.S. 583 (1974*) (finding the search of an automobile to be less intrusive than that of a home or one's person and noting that there was a lesser expectation of privacy in a motor vehicle); see also *U.S. V. Knotts, 460 U.S. 276, 281 (1983)* (discusses how a person driving in an automobile on a public roadway has no reasonable expectation of privacy while he or she is moving from one place to another).

[5] *State v. Weber, 163 Wis. 2d 116 (1991).*

[6] See also *Chambers v. Maroney, 399 U.S. 42 (1970); Coolidge v. New Hampshire, 403 U.S. 443 (1971); U.S. v. Ross, 456 U.S. 798 (1982); California v. Acevedo, 500 U.S. 565 (1991); Whren v. U.S.,*

It is important to note that the courts have drawn a legal distinction between the diminished expectation of privacy associated with a motor vehicle and the need for greater privacy protection afforded in the home. For example, the courts have objected to the use of certain technologies such as telescopes and thermal imaging devices that are available to the government (though not to most individuals), finding that their use requires a warrant based on the fact that they were used in situations involving a person's home. The Supreme Court in *U.S. v. Kyllo,* found that sense enhancement instruments (in this case a thermal imaging device to detect a suspected, marijuana growing operation) used to "explore details of the home that would have previously been unknowable" violate the Fourth Amendment. The court made the determination based on the presumption that use of the device is "presumptively unreasonable without a warrant."[7]

Does a passive alcohol sensor constitute a search of the subject's motor vehicle?

The Fourth Amendment to the U.S. Constitution protects persons from unreasonable searches and seizures. If a search does *not* occur or if a search is *not* unreasonable, then no constitutional protection has been violated. In order to determine whether the search of a constitutionally protected area has taken place, the courts must first determine if the subject has an expectation of privacy and second, whether that expectation of privacy is reasonable.[8]

In considering the case of a passive alcohol sensor, the expectation of privacy could be related to a person's breath, with or without measurable alcohol. A person's expectation of privacy on his or her breath does not appear to be a reasonable interpretation of the concept given the fact that a person's breath cannot be withheld from the public as part of societal life. A person's breath is not unlike facial features, voice, handwriting or fingerprints that are always on display to the public.[9] The courts may examine whether the interest that the person would like to protect can in fact, be kept private or whether that person in ordinary society could maintain the privacy claimed.

Whatever a person knowingly exposes to the public, no matter where the location, is not subject to protection by the Fourth Amendment. In finding that there was no reasonable expectation of privacy in one's voice or face, the U.S. Supreme Court in *U.S. v. Dionisio 410 U.S. 1 (1973)* held the following:

"The physical characteristics of a person's voice, its tone and manner, as opposed to the specific content of the conversation, are constantly exposed to the public. Like a

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517 U.S. 806 (1996); Wyoming v. Houghton, 526 U.S. 295 (1999); Florida v. White, 526 U.S. 559 (1999).

[7] *U.S. v. Kyllo, 533 U.S. 27 (2001).*

[8] *See Katz v. U.S., 389 U.S. 347, 361 (1967)(Harlan, J. concurring).*

[9] Fields, Michele and Hricko, Andrew "Passive Alcohol Sensors – Constitutional Implications", The Prosecutor, Summer 1986; pages 45-52.

man's facial characteristics, or handwriting, his voice is repeatedly produced for others to hear. No person can have a reasonable expectation that others will not know the sound of his voice, any more than he can reasonably expect that his face will be a mystery to the world.[10]"

Therefore, following the logic found in *Dionisio*, obtaining a sample of a person's breath that already exists in full public view does not constitute "a search" within the constitutional principles of the Fourth Amendment.

Simply put, a person cannot reasonably expect that her/his expelled breath could remain private. In the case of a motor vehicle, the expectation of privacy for one's breath becomes even more diminished with respect to the automobile exception rule to the Fourth Amendment as discussed previously.

Testing to see if a search is unreasonable. Take this one step further and, *for the sake of argument*, assume that the use of a passive alcohol sensor *does* constitute a search. The hypothetical question now becomes, *is the search reasonable?*

The Fourth Amendment to the U.S. Constitution does not prohibit all searches; instead it prohibits all *unreasonable* searches. Whether a search is reasonable or not under the Fourth Amendment depends first upon a court determination that a law enforcement officer has probable cause to believe that a violation exists. This is an important point to make with respect to the use of passive alcohol sensors in Wisconsin. **According to Wisconsin State Statutes, well before breath or blood testing has taken place, and before a traffic stop can even be made, the officer must have reasonable suspicion or probable cause to believe that the driver has been consuming alcohol and may be impaired by the alcohol.** The statutory basis for the establishment of probable cause in Wisconsin states:

"*(a) Notwithstanding sub. (1) A police officer, sheriff, deputy sheriff, traffic officer or motor vehicle inspector may not stop or inspect a vehicle solely to determine compliance with a statute or ordinance specified under par. (b) unless the police officer, sheriff, deputy sheriff, traffic officer or motor vehicle inspector has reasonable cause to believe that a violation of a statute or ordinance specified under par. (b) has been committed.*

-Wisconsin State Statutes s.349.02(2)(a)

[10] *See U.S. V. Dionisio, 410 U.S. 1 (1973).*

Caution Regarding Sobriety Checkpoints

In several states, passive alcohol sensors have been used in conjunction with "sobriety checkpoints" or roadblocks to randomly search vehicles for open containers and for the presence of alcohol in the air surrounding the driver. In Wisconsin, however, sobriety checkpoints are prohibited by Wisconsin state statutes (see Wisconsin State Statutes 349.02(2)(a) above); primarily due to concerns regarding potential abuses of individual privacy rights.

The reader should be cautioned that this report does not advocate the use of sobriety checkpoints in Wisconsin; nor does this report lay down a foundation for the statutory repeal of the prohibition. In Wisconsin, an officer must have reasonable suspicion to effect a traffic stop and probable cause before proceeding with any additional action (e.g., such as proceeding to conduct a further search for other drugs or weapons).

After probable cause is established, field sobriety testing is typically conducted by the law enforcement officer to determine whether the driver has actually consumed the alcohol and if the subject is, in fact, impaired or operating while intoxicated (OWI). The sequence of contact has become standard procedure for the arresting officer and generally includes the officer's:

- initial observation of the vehicle in motion;
- conducting a traffic stop;
- initial personal contact;
- observation of the exit sequence of a driver getting out of the vehicle;
- field sobriety tests (e.g., counting, evaluation of balance, motor functions nystagmus or eye movement);
- preliminary breath test;
- arrest and transport; and
- breath or blood alcohol test.

The use of a passive alcohol sensor device could theoretically be incorporated into this OWI traffic stop sequence at any time between *initial personal contact* and *arrest and transport.* The officer may use a passive alcohol sensor device to assist in determining the presence of alcohol before any field sobriety test or in place of a preliminary breath test device (PBT). The passive alcohol sensor represents one of the techniques that may be available to an officer during the sequence of an OWI traffic stop.

If probable cause or reasonable suspicion is established before a passive alcohol sensor is used, the probable cause requirement has been met and the law enforcement officer would be free to employ any technique, or combination of techniques of sobriety testing.

Secondly, in determining whether a search is reasonable, the courts must also balance the intrusion against the purpose served. Whether a law enforcement tool to conduct a search is considered reasonable involves the balancing of the intrusion against the promotion of a legitimate governmental interest.[11] Presumably, in the case of passive alcohol sensors, the interest that would be advocated by the government is that the use of the device to detect the presence of alcohol would assist in the reduction of traffic fatalities associated with alcohol impairment.

In Wisconsin in 2001, alcohol was listed as a contributing cause in 7% of all crashes and 39% of all fatal crashes. From 1976-2001, there have been 9,952 motor vehicle fatalities associated with alcohol in the state. Arguably, the government has a legitimate state interest to keep impaired drivers off the state's highways and reduce the number of fatalities. Assuming that passive alcohol sensors can, in fact, accurately detect the presence of alcohol and assist law enforcement in reducing the number of alcohol-related fatalities, the intrusion may be minimal and therefore, reasonable. Again, this argument assumes that the use of a passive alcohol sensor is initially considered a search. This assumption is debatable in light of past decisions by the U.S. Supreme Court such as in *Katz v. U.S., 389 U.S. 347, 361 (1967).*

Is it legal to test other areas and passengers of the vehicle using a passive alcohol sensor even though it was the driver who was stopped for OWI or for another traffic violation?

Current Wisconsin Law with respect to reasonable suspicion/probable cause does not permit a law enforcement officer to question a passenger in a vehicle stopped for a possible OWI violation unless the officer has an independent reason to believe that the passenger has committed an offense. There are reasonable limitations on the extent to which an officer may question passengers in a vehicle. This concept requires a distinction between the officer having a "discussion" with a passenger and conducting an "interrogation" of a passenger.

An officer may observe that a passenger is intoxicated, but if there is no evidence that her/his intoxication is in violation of law, no further action may be necessary in relation to that passenger.[12] However, if an officer has reason to believe that the intoxicated passenger is under the legal drinking age or has violated another law, further action, including alcohol testing or questioning of that passenger would be necessary to establish probable cause for arrest. Again, reasonable suspicion/probable cause must exist <u>before</u> a passive alcohol sensor could be used on the driver/passenger/suspect.

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[11] See *Delaware v. Prouse, 440 U.S. 648, 654; (1979*). See also *U.S. v. Martinez-Fuerte, 428 U.S. 543 (1976); U.S. v. Brignoni-Ponce, 422 U.S. 873, 878 (1975); Terry v. Ohio, 392 U.S. 1,20-21 (1968).*

[12] *See ss.968.24, "Temporary Questioning Without Arrest" and ss.968.07 (1)(d), "Arrest by a Law Enforcement Officer."*

Note that under s.346.935(2), it is illegal to have open containers of alcoholic beverages ("intoxicants") in a vehicle. The owner or driver of the vehicle is imputed with a violation of this law in addition to any other violation that may result from an OWI traffic stop.

The Plain View Doctrine and Sense Enhancement Doctrine: Exceptions to the Fourth Amendment

Two additional exceptions to the Fourth Amendment to the U.S. Constitution are the *plain view doctrine* and the *sense enhancement doctrine*. Although these exceptions are separate principles, they are closely tied to each other in terms of their application to the use of passive alcohol sensors. These two principles will be defined as they relate to law enforcement use of passive alcohol sensors as allowed under the Fourth Amendment.

The Plain View Doctrine is defined as:

"A doctrine that permits the search, seizure, and use of evidence obtained without a search warrant when such evidence was plainly perceptible in the course of lawful procedure and the police had probable cause to believe it was incriminating.

Objects falling in the "plain view" of an officer who has the right to be in the position to have that view are subject to search and seizure without a warrant or if that officer needs a warrant or probable cause to search and seize, her/his lawful observation will provide grounds thereof. The plain view doctrine is limited by the probable cause requirement: officers must have probable cause to believe that items in plain view are contraband before they may search or seize them."

Reference: ***FindLaw for Legal Professionals***

In addition to first establishing probable cause, an officer (i.e., one using a passive alcohol sensor) must meet the following required two-prong test:

(1) Does a law enforcement officer have the right to be beside or near the vehicle?

Once an officer has probable cause to make a stop, either because of a traffic violation or because of reasonable suspicion that a violation has occurred, an officer has established a legitimate reason to be beside or near the driver's vehicle. Again, the suspect cannot rely on an expectation of privacy while inside the automobile that would preclude a law enforcement officer from walking up to the vehicle and standing beside or near it.

(2) Is it apparent that what is before a law enforcement officer is evidence of a crime?

Although an officer may have established a right to be beside or near the driver's vehicle, the plain view doctrine requires that it be evident to the law enforcement officer that what is before him or her is evidence of a crime before investigating any further.

With respect to passive alcohol sensors, if the law enforcement officer can satisfy these conditions (has a right to be near or beside the vehicle and what is apparent before the law enforcement officer is evidence of a crime), then the use of the device should meet the test and be permissible.

Closely related to the plain view doctrine is the ***sense enhancement doctrine***. **This doctrine explains that law enforcement may use their senses, or an enhancement of their senses to make an assessment that there is evidence of a crime.**

The smell of alcohol is very distinct and is one very good example of how an officer can make the determination that there is apparent evidence that a person has been drinking. Another might be the visual presence of an open container.

Discovery of the smell, however, must be inadvertent. While this precludes an officer from "probing", an officer may aggressively use his or her senses. In *U.S. vs. Johnson,*[13] the U.S. Court of Appeals for the Ninth Circuit rejected the defendant's argument that he had a reasonable expectation of privacy from drug agents with "inquisitive nostrils." The court found that when the agents would lean down to smell a suitcase from a standing position, that even this did not constitute a "search" as defined by the Fourth Amendment.

Suppose however, that the officer uses an *additional* method or device beyond his or her natural senses, such as a passive alcohol sensor, to help determine if evidence of a crime exists. Does this invade an area protected the Fourth Amendment?

The courts have frequently ruled that certain types of technologies can be used to assist an officer to sense evidence of a crime while remaining within the boundaries of the Fourth Amendment. For example, the use of drug-sniffing dogs has been found constitutional because the dog is considered an extension of the officer's natural senses.[14] Similarly, x-ray machines are commonly used at airports to examine the contents of luggage. X-ray machines have become accepted technology in the majority of countries throughout the world in order to prevent the spread of terrorist

[13] *U.S. v Johnson, 497 F.2d 397 (9th Cir. 1974)*

[14] *U.S. v. Place, 462 U.S. 696, 707 (1983)(*finding the use of a police dog to enhance the senses of the police officer in the detection of narcotics did not violate the Fourth Amendment).

activity. Even before the 9-11-01 terrorist events, the courts have also affirmed the reasonableness of using x-ray machines[15].

Note that when these methods (including passive alcohol sensors) are used, the nature of the evidence is not affected. For example, applying the sense enhancement doctrine, no distinction is made as to whether the alcohol is sensed by a passive alcohol sensor or by the officer's nose – the evidence is still present and has not been altered no matter which method is used. Again, the technology is used as a means to enhance a law enforcement officer's ability to sense apparent evidence in the automobile in which the courts have determined that there is a diminished expectation of privacy.

From the legal perspective, should the subject's inability to easily identify the passive alcohol sensor as a breath-testing device be of concern to the courts?

Passive alcohol sensors come in many shapes and sizes. A style typically used by law enforcement agencies in Wisconsin is the flashlight or baton-shaped PAS[16]. Other forms include clipboard-like devices and shapes that resemble small electronic devices. Because the devices appear to be something other than a testing device, they are not readily identifiable by the suspect as an alcohol-detecting device. As a result, those who are concerned with individual privacy rights object to the fact that these devices are intended to be used in a covert manner to detect alcohol without the subject knowing that they are being tested.

Privacy is a principle that is held in high regard by citizens in Wisconsin. This is reflected in a random, statewide survey of Wisconsin residents by the University of Wisconsin Survey Center[17]. According to the survey, 61% indicating that passive alcohol sensors were a valuable tool. However, 33% indicated that use of a passive alcohol sensor represented an infringement of privacy rights.

From a strictly legal, constitutional perspective, there does not appear to be a requirement that the officer must provide notification to the driver that the covert device is a passive alcohol sensor which will be used to obtain a sample of the subject's breath. However, if passive alcohol sensors were to be used by law enforcement, a set of policies in place that requires such notification may make sense as a matter of promoting the public's trust in law enforcement. As part of the two focus group sessions conducted by the Wisconsin Department of Transportation in September, 2002, several law enforcement officers and legal experts expressed the need to have a local policy in place that would require an officer to properly notify drivers that a passive alcohol sensor is being used to obtain a sample of their breath.

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[15] *U.S. v. Smith, 643 F.2d 942, 944-45 (2d Cir. 1981)* (finding that the use of x-ray machines reasonable when weighed against the possibility of hijacking).

[16] The PAS devices resembling flashlights (i.e. PAS III) were used by law enforcement in the following municipalities and counties: Dane County, Elkhart Lake, City of Green Bay, City of Manitowoc, City of Waukesha, Village of Whitefish Bay.

[17] 2002 Department of Transportation Omnibus Study, University of Wisconsin Survey Center (September 19, 2002)

If the passive alcohol sensor detects alcohol near an open bottle of intoxicants in the motor vehicle, but not visible to the law enforcement officer conducting or assisting the traffic stop, does this discovery of the open bottle still fall into the "plain view" doctrine?

Legal Focus group participants were queried via email to address this issue, which was not discussed during the focus group session. The following are their responses:[18]

"It would not be in plain view because [the officer did] not see the bottle – I assume it was found only after a search pursuant to the sensor indicating the presence of alcohol. The plain view doctrine only "kicks in" for things that are seen without any kind of manipulation or search."

"I do not believe that a concealed container can properly be deemed in plain view when it is detected with such a sensory aid."

"It is unclear ...how plain view applies to the open container if the officer does not see it as set forth in the facts. If the container is found during a subsequent search as a search incident to arrest or perhaps even as a consent search then there is no problem. Plain view doctrine does not apply. If the question is really what happens if an open container is subsequently located and that arguably the open container is what caused the passive alcohol sensor to alert the officer, I still don't see a problem as the officer would still have to conduct his investigation including making his own observations regarding signs of intoxication including field tests before an arrest is made…use of the passive alcohol sensor does not qualify as a search, and therefore, no constitutional questions arise."

"The question you pose in your letter is a difficult one to answer without more information. For example, we are told by proponents of these sensors that they had to be in reasonably close proximity to the alcohol in order to detect its presence (i.e., that the sensor would not have to be stuck up a driver's nose, but would have to be in an officer's hand in close proximity to the open window of a car when questioning the driver). If this is true, it makes me wonder how the sensor is going to detect alcohol that is not visible to the officer without being waved around the interior of the vehicle. That "waving around" sounds suspiciously like an illegal search in the first place."

"Whatever your intended fact situation might be, your question involves the more fundamental issue: Does this discovery fall under the "plain view" doctrine? I believe it does not. The only way in which the sensor will detect alcohol "near" an

[18] **Staff Note**: The issue related to the open bottle in a vehicle was answered differently than other questions because the legal focus group did not address it at the September 11, 2002 session due to time constraints. In order to eventually have the question answered, WisDOT sent out a separate request to the legal focus group and received four responses. Note that this is a very narrow, legal question that may ultimately be answered in court and not in this paper. The question was not addressed specifically at the law enforcement focus group for the same reason and because it is essentially a legal question.

open bottle that is not visible to the officer is by activity beyond the appropriate scope or permitted conduct. My answer may be influenced by my strong belief that these sensors should not be employed in Wisconsin law enforcement."

"This question raises two issues:

1) The prohibition against having open intoxicants in a vehicle under s. 346.935; and 2), The "plain view" exception to the warrant requirement justifying a search and seizure.

First, the statute is clear in this respect. Section 346.935(2) prohibits a person from possessing on his or her person while in a vehicle on a public highway any bottle or receptacle containing alcohol beverages if the bottle or receptacle has been opened, the seal has been broken or the contents have been partially removed or released. Further, subparagraph (3) prohibits the vehicle owner or driver of the vehicle, if the owner is not present, to have any bottle containing alcohol in the vehicle if the bottle has been opened or the seal has been broken. While sub. (3) states that the prohibition does not apply if the bottle is kept in the trunk of the vehicle, it does not otherwise specify that the bottle has to be easily visible. The bottle must be in some area of the vehicle that is normally occupied by the driver and passengers. In other words, the bottle could be under the seat or in a utility compartment or even the glove box, for that matter. Therefore, in my opinion, the statute gives an officer who detects the odor of intoxicants whether by olfactory senses or by PAS the authority to investigate under Terry v. Ohio, 392 U.S. 1 (1968) a possible violation of sec. 346.935.

Second, the "plain view doctrine" is an exception to the Fourth Amendment's warrant requirement to conduct a search. The necessary elements of this exception are:

1) The evidence must be in plain view. (This can include evidence that an officer recognizes through any of his or her senses; e.g., smell.);

2) The officer must have a prior justification for being in the position from which he or she discovers the evidence in "plain view," and

3) The evidence seized "in itself or in itself with facts known to the officer at the time of the seizure, [must provide] probable cause to believe there is a connection between the evidence and the criminal activity." State v. Guy, 172 Wis. 2d 86 (1992).
Although I do not think that using an officer's senses; e.g., nose, or a PAS constitutes a search for Fourth Amendment purposes, I will apply the "plain view doctrine" for the sake of argument. The use of a PAS suggests to me that the officer stopped the vehicle for a legitimate purpose. Thus, element no. 2 is satisfied given that a valid traffic stop will provide the "prior justification" for the officer being in a position to discover the evidence in "plain view." Element no. 1 addresses the given scenario that while the bottles may not be "visible," they could still technically be in "plain view" if picked up by the PAS or the officer's nose. Element no. 3 is clearly satisfied

because the detection of an open intoxicant will certainly provide probable cause to believe that sec. 346.935 has been violated.

Therefore, applying the statute's unequivocal prohibition and the "plain view doctrine," an open bottle that is inside a motor vehicle in an area normally occupied by the driver and passengers while operated on a highway, but not visible, could be legally "discovered" by a police officer."

State Law, Law Enforcement Policy and Public Perceptions

Despite the fact that passive alcohol sensors may be considered "constitutionally acceptable", many policy issues still remain with respect to "public acceptance" of the devices. In considering the use of passive alcohol sensors, state law and law enforcement policy is frequently influenced by the tension between people's perceptions of the devices, and the public's desire to foster safe highways. These competing concerns, which are routinely brought forth by various constituencies and groups, are typically balanced against each other by the legislature when creating new legislation.

State law, law enforcement policy and public perceptions were among the topics addressed by the two focus groups convened by the Wisconsin Department of Transportation to assist in studying passive alcohol sensors. These two focus groups – the Legal Focus Group[19] and the Law Enforcement Focus Group[20] - met separately in September, 2002, to respond to specific queries on passive alcohol sensors and their use at OWI traffic stops in Wisconsin.

Note that a full listing of all the comments received from both focus groups can be found in Appendix C.

In addition, the results from the 2002 Wisconsin Survey Center "Omnibus" survey, a randomized sampling of Wisconsin residents that included several questions on the public's perceptions of passive alcohol sensors, are also provided on Page 42. These perspectives may be considered with respect to proposed changes in state statutes or in the development of administrative rules governing the use of passive alcohol sensors.

[19] The legal focus group, composed of members of the legal community, was selected on the basis of their interest in passive alcohol sensors in relation to the legal profession and/or possible experience with their use in Wisconsin.

[20] The law enforcement focus group, composed of members of the law enforcement community, was selected on the basis of prior knowledge or use of passive alcohol sensors, interest in possible uses of the devices, or the type of law enforcement agency each member represented.

Legal and Policy Concerns Expressed by the Legal Focus Group, September 11, 2002, Hill Farms State Office Building, Madison, Wisconsin

Trends and perceptions of alcohol-related crashes and fatalities

- Statistics that indicate a downward trend in the number of alcohol-related deaths over several decades may lead some to question whether passive alcohol sensor use is really needed;
- The problem of alcohol-related crashes may need to be better defined to enable a better identification of the tools and technology needed to address the problem.
- Though there has been a decline in alcohol-related fatalities, each one still represents a tragedy to the families and people who are affected by them; the issue must still be addressed.
- The decline in alcohol-related deaths is due to new laws, fines, and court cases that provide more tools for law enforcement to use in enforcing OWI laws.

"The use of passive alcohol sensors should not banned"

- The decision for the use of passive alcohol sensors should be left to each individual community or law enforcement agency.
- Banning passive alcohol sensors statewide would not serve a constructive purpose. Communities with financial flexibility or more aggressive approaches to technology may choose to use passive alcohol sensors.
- There is the possibility that varying use of the devices among individual communities could create a negative situation involving "selective enforcement" where a "rich" community could target poor people or a member of another race.

"Costs versus benefits"

- From a cost/benefit point of view, passive alcohol sensors appear to provide minimal benefit. The money would be better spent to advance other technology or to enhance other programs that are shown to be more effective in reducing drinking and driving.
- Although passive alcohol sensors are constitutionally permissible, they do not represent a "silver bullet" in the enforcement of drunk driving laws or in efforts at reducing alcohol-related crashes and fatalities.
- Passive alcohol sensors represent one of many tools available for traffic enforcement.

The use of passive alcohol sensors in the courts – value to prosecutors, defense and in expert testimony

- From a prosecutor's viewpoint, passive alcohol sensors are not expected to have a big impact on the number of OWI convictions.
- Law enforcement may not like having passive alcohol sensors as an additional tool that they must document and justify during cross-examination in court. This testimony may include a justification of why the device may *not* have been used as well as to *how* it was used.
- Use of the device may provide an additional defense argument in court (defense could attack the use and credibility of passive alcohol sensors utilizing expert testimony which could be counterproductive).
- There is concern that some law enforcement officers would lose credibility because of the perception that a tool is needed to smell alcohol.

"Probable cause is an important fixture in Wisconsin and should be considered when using passive alcohol sensors"

The group emphasized law enforcement adherence to the mandate of "probable cause/reasonable suspicion" before an officer conducts an OWI traffic stop.

"Perception of Intrusiveness"

The perception of how intrusive the device *could* be was an important consideration for many focus group members. The "public" not only represents those who are concerned about reducing alcohol-related crashes, but also those who are interested in protecting privacy rights.

Sobriety Checkpoints

In some states (e.g. Illinois), methods such as sobriety checkpoints are tolerated by the general public as a tool for reducing alcohol-related crashes and fatalities because of a general concern over impaired driving. However, due to the political climate and constituent concerns, sobriety checkpoints are not currently permitted by Wisconsin statutes. They are often perceived as giving the government a "blank check" to invade someone's privacy.

"Privacy should be seen in the 'broader context"

- Passive alcohol sensors can constitute an unreasonable search because, in the broader, societal context, they represent one more tool in a broad continuum of tools used by law enforcement for conducting an investigation or conducting surveillance on private citizens.

- Acceptance of passive alcohol sensors could create a "slippery slope" or a "Big-Brother" effect in which privacy rights are eroding away over the long-term. The public is becoming increasingly concerned about this problem and government should be very careful about "setting precedents" or "creating permissions" that would take away fundamental privacy rights.

- Technology has progressed to the point that it has "gotten ahead of privacy laws."

- Passive alcohol sensors would "not be used in every home" and have limited usefulness.

- There is concern that the use of passive alcohol sensors would be much different if it were discussed more broadly and not specific to traffic stops, but rather applicable to teen alcohol parties and group events.

"Is technology going too far?"

- Requiring photo identification with fingerprints is an example of law enforcement efforts going too far.

- It was now even possible for a DNA sample to be collected by an officer using a saliva swab from the inside of a person's mouth.

- If the public has the perception that passive alcohol sensors are too intrusive, then it becomes overly burdensome to defend their use in court.

- The results of a passive alcohol sensor are not admissible as evidence in court (a passive alcohol sensor cannot measure exact quantity of alcohol) eliminating its importance to the judicial process.

- Much of the technology is too expensive for local government to afford which may deter its purchase and use by individual agencies. Thus, the technology is really not that pervasive in society.

Concerns over potential abuses of passive alcohol sensors

- There is concern that the passive alcohol sensor could detect alcohol that had been spilled by a passenger, but not consumed by the driver, or that the passenger might be impaired yet the driver would be suspected of drinking alcohol.

- There is concern that law enforcement could use the sensors in conjunction with the targeting of specific motorists, leading to further interrogations of the driver and passengers (i.e. "profiling").

- There is concern that having a flashlight "stuck in a subject's face" could be intimidating, even though the PAS flashlight can be used at a distance of 10 inches from a person's mouth. (required distances from a subject's mouth vary from 3 to 10 inches depending upon the type of passive alcohol sensor device used).

- Even routine traffic stops were "traumatic events" suggesting that use of a passive alcohol sensor at a traffic stop adds to that trauma.

How do passive alcohol sensors compare to other law enforcement technology like x-ray machines?

- The public already must contend with other "intrusive" technology that is designed to protect them such as x-ray machines at airports and radar used for enforcing speed; this technology is not much different.

- One participant stated a passive alcohol sensor represented an enhancement or extension of the officer's own senses "like an officer's binoculars."

- A passive alcohol sensor may be no more or less intrusive than these examples and the public is accustomed to and even expects law enforcement officers to use technology for enforcement at a traffic stop (e.g., PBTs, Intoximeter EC/IR).

- Since the terrorist attacks on 9/11/01, the public seems to be more open to having more security and more "tools."

- A major difference between a passive alcohol sensor and other technology is that a passive alcohol sensor is sensing alcohol, which is a *legal* substance (as long as the amount is at the legal limit) in today's society and that is where the intrusion lies. Whereas, other technology is often looking for illegal items such as bombs or drugs. That introduces the concept of absolute sobriety as the minimum BAC level for drivers.

"Guidelines would be helpful for law enforcement officers"

- It would be helpful to have a set of guidelines and policies for law enforcement on how and when to use passive alcohol sensors.

- The driver/violator should be given reasonable notice by the law enforcement officer that the device will be used to detect alcohol on that person.

- Ultimately, the passive alcohol sensor is used at the discretion of the officer.

Legal and Policy Concerns Stated by the Law Enforcement Focus Group, September 4, 2002, DSP Headquarters, Fond du Lac, Wisconsin

"Probable cause is important in Wisconsin"

- The use of passive alcohol sensors is a "chicken/egg issue." A passive alcohol sensor is "only effective if probable cause exists first". Since the state legislature is more interested in when and how the device is used with respect to probable cause, the use of a passive alcohol sensor after the stop is made may be less likely to create concern with whether the device can be used or not. If it appears that law enforcement using the device on a deceptive basis, the legislature would probably ban its use.

- The legislature should be better informed about how the device would be used.

- All law enforcement officers should be trained in the proper and legal use of the device to minimize legal problems with how it was used.

"Not necessarily cost effective, but lets keep our options open"

- Compared to other tools (e.g., preliminary breath devices, Intoximeter EC/IR) passive alcohol sensors were not as good or as cost effective. However, this is not reason enough to "ban their use" because there are particular situations where passive alcohol sensors may be useful.

- Having these devices should at least be an option for the officer. The decision as to whether these devices are seen as "cost effective" or not should be left up to the individual law enforcement agencies.

- It is probably not economical to have a device in every law enforcement vehicle.

"Fourth Amendment and Plain View Doctrine"

- From a legal perspective, a law enforcement officer should have no problem using passive alcohol sensors as long as they are used within the legal rules of probable cause and the plain view doctrine. Within these boundaries, a passive alcohol sensor is considered "an extension of the law enforcement officer's own senses" (e.g., binoculars).

- If properly trained, the law enforcement officers can use the device within the limits of the law enabling the public to understand the need for the device. As a result, passive alcohol sensors may not be contested in court.

Legal standing of passive alcohol sensors

- Arrests are not made solely on the basis of the reading from a passive alcohol sensor device. Results from a passive alcohol sensor are not admissible in court and can only be used as just one indicator of the presence of alcohol in a long series of sobriety tests conducted during traffic enforcement.

The nature of the evidence is not changed through the use of a passive alcohol sensor. Alcohol is present without regard to how it is sensed, either by the device or with the nose.

"Covert uses" of passive alcohol sensors.

- There is extensive concern regarding the use of "covert types" of passive alcohol sensors on juveniles or at schools because it creates the perception among parents that officers were being "sneaky."

- It is important to deal with the public on a "professional level," suggesting that the use of passive alcohol sensors in a covert manner is contrary to standard practice because it could betray the public's trust. Deceptive tactics create problems over time and produce poor public relations.

- It is good policy for law enforcement to inform the motorist if the passive alcohol sensor is being used to sense the presence of alcohol.

- There are other devices on the market that look like electronic devices and are not designed to be covert.

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Legislative Initiatives

- The state legislature could pass a law requiring a trial phase in which a selected number of law enforcement agencies could test the device and collect data on it accuracy and effectiveness.

- Guidelines on the proper use of passive alcohol sensors (including training) for all law enforcement agencies would help.

- Opposition to banning the devices altogether to permit the technology to develop and improve over time as the law enforcement officers continue to use them.

"Training is essential"

- Training is essential for the correct use of passive alcohol sensors.

- Training must include focus on the legal requirements of using a passive alcohol sensor (e.g., "plain view doctrine", "probable cause") as well as technical requirements for using the tool.

- Training is important to maintain professional standards and to ensure that the passive alcohol sensor is not the only tool that was used to determine whether a suspect had been drinking or not.

Legal and Policy Concerns from the General Public: Results of the 2002 Omnibus Survey Questions Re: Passive Alcohol Sensors

The 2002 Department of Transportation Omnibus Study was conducted by the University of Wisconsin Survey Center (UWSC) for the Wisconsin Department of Transportation.

The UWSC is a department of the College of Letters and Science at the University of Wisconsin-Madison. Funding for the UWSC is provided by the College and from revenue generated by contractual work.

The goal of this study was to interview 750 randomly selected men and women in households throughout the State of Wisconsin to gather residents' opinions on a wide range of state transportation safety issues. Only Licensed Drivers were interviewed, so households that included no licensed drivers were screened out and the interview was terminated. These accounted for only 3.3% of the households where contact was made. The UWSC fielded a sample of 3000 randomly generated Wisconsin phone numbers. This random phone sample was obtained from Survey Sampling, Inc.

Interviewing for the 2002 Department of Transportation Omnibus Study began on July 23, 2002, and ended on September 4, 2002. The UWSC completed at total of 770 interviews at an average length of 18.07 minutes per interview. The overall response rate for the survey was 55.30%. The following provides the results of three questions from the survey focusing specifically on public perceptions of passive alcohol sensors.

Passive Alcohol Sensor Questions from 2002 Wisconsin Omnibus Survey

1) Some people feel that law enforcement officers should have sniffers available to them as a tool to use in the process of investigating someone for drunk driving. Others think this kind of tool is an infringement of privacy rights. How do you feel about the use of sniffers? Would you say this is a valuable tool, or an infringement of privacy rights?

   (Interviewer: Do not read categories)

No.	%	
469	60.9	Valuable Tool
252	32.7	Infringement of Privacy Rights
4	0.5	Don't care either way (volunteered)
15	1.9	Both, but lowering drunk driving makes it acceptable
16	2.1	Other

2) Are you aware of a situation in which YOU may have been tested by a Wisconsin law enforcement officer using a sniffer?

No.	%	
13	1.7	Yes
751	97.5	No
6	0.8	Other

3) Were you operating a vehicle at that time, were you a passenger in a vehicle, or was it some other kind of situation?

No.	%	
757	98.3	Missing values (N/A)
9	1.2	Operating a vehicle
2	0.3	Passenger in a vehicle
2	0.8	Some other situation

Chapter Three:

How well do Passive Alcohol Sensors Perform? Are they "Accurate?"

Chapter Three: How well do Passive Alcohol Sensors Perform? Are they "Accurate?"

Performance of Passive Alcohol Sensors

WisDOT, Division of State Patrol, Chemical Test Section Evaluation

The following is a summary of the Chemical Test Section's Evaluation of six passive alcohol sensors currently marketed in the United States. A copy of the full report can be found in Appendix A

An evaluation of passive alcohol sensing devices marketed in the United States was undertaken by the Chemical Test Section to test their performance under both laboratory and controlled drinking settings. Professional contacts and a search of the Internet yielded a list of six manufacturers conducting business in the United States. These six manufacturers were contacted to determine their willingness to participate in the study. Each of the contacted manufacturers agreed to participate and provided a single device for evaluation for the duration of the study. Each device was shipped to the State Patrol, Chemical Test Section with pertinent documentation including technical data sheets, training videotapes, manuals, etc. Testing was conducted from May through October 2002 by the Section chemist and other Section staff. Section staff was trained by the Chemist in the proper use of each device prior to testing.

General operation of a passive alcohol sensor consists of pointing or directing its sampling port to a subject's mouth from a distance that varies by manufacturer. Depending on the device, the operator instructs or encourages the subject to breathe, blow or speak at the device while an air sample is obtained. The analytical method employed by the devices to detect ethanol is the fuel cell, which is common to other breath alcohol testing devices used in Wisconsin including preliminary breath tests (PBT) and the Intoximeter EC/IR, the State's current evidential breath testing device. The fuel cell then analyzes the sample, quickly providing a result in the form of either a numerical readout, indicator lights which display zero, low, or high amounts of alcohol, or a 'P' (Pass) / 'F' (Fail) display indicating the absence or presence of alcohol, respectively. According to manufacturers' literature, each of the devices are ready for a subsequent test within two to thirty seconds after a negative air sample and within twenty seconds to two minutes after an alcohol-laden air sample is tested.

PERFORMANCE TESTING IN THE LABORATORY

Accuracy testing was conducted in the Section laboratory under tightly controlled conditions. Single analyses of simulated breath at six breath alcohol concentrations: 0.00, 0.02, 0.04, 0.08, 0.10, and 0.20 g/210L, using characterized breath alcohol simulator solutions were tested. These breath alcohol concentrations represent important statutory benchmarks and breath concentrations commonly encountered in traffic enforcement. Human breath was blown into the inlet port of the simulators to

produce the samples and towards each passive alcohol sensor from distances of 1, 4, 6, 12, and 18 inches

See Table 1, which contains the results of the testing showing how predictably the passive alcohol-sensing device could detect alcohol in the simulated breath presented to it from five different distances.

Test Results: Performance Testing in the Laboratory

Result: **All passive alcohol sensors tested detected alcohol more than 80% of the time in simulated breath at six inches or less.** Five of the six devices detected alcohol 100% of the time when alcohol-containing breath was presented to the device at 6 inches or less. Performance at longer distances decreased so that at 18 inches only one-half of the units could detect alcohol 80% of the time or more. No passive alcohol sensor manufacturer studied recommends passive alcohol sensor use further than 10 inches from a subject in question. Five of the six passive alcohol sensors properly detected alcohol in simulated breath, when samples were obtained within the manufacturers recommended distances.

See Table 2, which is a summary of the performance of the device when presented with simulated alcohol breaths containing differing breath alcohol concentrations.

Result: **False positives were evident with only one device.** The other five passive alcohol sensors correctly detected no alcohol when alcohol-free simulated breath was presented.

Result: **All devices detected simulated breath alcohol in concentrations of 0.02 - 0.04 g/210L between 60-100% the time.** Performance improved as the concentration of alcohol in the simulated breath increased. Five of the six passive alcohol sensors could detect simulated breath alcohol concentrations of 0.08 g/210L and greater.

Table 1
PASD Detection of Simulated Breath Alcohol at Five Distances

Device	1 inch	4 inches	6 inches	12 inches	18 inches
QuickDraw	100.0%	100.0%	*100.0%*	*80.0%*	*60.0%*
Alcoscan	100.0%	100.0%	100.0%	*60.0%*	*20.0%*
FC10Plus	100.0%	100.0%	*100.0%*	*80.0%*	*100.0%*
AlcoBlow	100.0%	*100.0%*	*100.0%*	*100.0%*	*80.0%*
Alcotest	100.0%	100.0%	100.0%	80.0%	60.0%
PAS III	*83.3%*	*100.0%*	100.0%	*83.3%*	*100.0%*

Shaded area denotes outside of manufacturers' recommendations for use.

Table 2
PASD Detection of Six Simulated Breath Alcohol Concentrations

Device	0.00	0.02	0.04	0.08	0.10	0.20
QuickDraw	100%	60%	80%	100%	100%	100%
Alcoscan	100%	60%	60%	80%	80%	100%
FC10Plus	100%	80%	100%	100%	100%	100%
AlcoBlow	100%	80%	100%	100%	100%	100%
Alcotest	100%	60%	80%	100%	100%	100%
PAS III	*40%*	100%	100%	100%	100%	100%

Shaded area denotes solution containing no ethanol identified as alcohol.

CONTROLLED DOSING STUDY

Controlled dosing (i.e. drinking subject testing) was performed with each passive alcohol sensors in conjunction with routine Breath Examiner Specialist Training. Breath Examiner Specialist Training provides instruction to law enforcement personnel in the proper operation of the Intoximeter EC/IR, Wisconsin's evidential breath alcohol testing instrument. Passive alcohol sensing device operators included Section personnel who had been trained by the Section Chemist in the manufacturers' procedures for routine use (detailed information about the Chemical Test Section's analysis involving controlled dosing tests can be found in Appendix A of this final report).

The study's volunteer subjects were law enforcement officer training participants, who as a routine part of their instruction, volunteered to drink alcoholic beverages thereby providing drinking subjects for non-drinking breath examiner specialists in training. Device operators were Chemical Test Section personnel, trained in the manufacturers' procedures for routine use. Volunteers were provided sufficient alcohol, consumed in one hour, to achieve a maximum breath alcohol concentration of 0.10 g/210L, and were under close supervision by Section personnel. EC/IR breath alcohol concentrations of the subjects averaged 0.045 g/210L (range 0.00 to 0.09 g/210L). Results from the passive alcohol sensors were compared to evidential breath alcohol tests taken within 15 minutes.

Test Results: Controlled Dosing Study

Table 3 summarizes performance of passive alcohol sensing devices versus contemporaneous Intoximeter EC/IR tests on volunteer drinking subjects when used at five different distances. Graphs 1-6 summarize individual performance of each passive alcohol sensor in comparison to contemporaneous Intoximeter EC/IR tests at all distances studied (see Appendix A).

Result: **The data show that when passive alcohol sensors were used at distances greater than one inch, one-half or more of them failed to detect breath alcohol more than 80% of the time.**

Result: **Operation of the devices at 12 inches yielded only one device with a greater than 50% chance of detecting alcohol in known drinkers.**

Result: **When used at the manufacturers recommended operational distances, only two devices, detected alcohol in more than eighty percent of the drinking subjects.**

Result: **Passive alcohol sensing devices have poor *quantitative* abilities.**

Result: **Data in this study confirm that the ability of passive alcohol sensors to measure a coexisting breath alcohol concentration is *poor*. For example, the sensors cannot tell if a person testing positive on the device has a breath alcohol concentration of 0.01 or 0.10g/210L.**

Table 3

PASD vs Intoximeter EC/IR with Drinking Subjects

Device	1 inch	4 inches	6 inches	12 inches	**Average***	**Alcohol-free breaths****
QuickDraw	100.0%	88.9%	*82.1%*	*70.0%*	86.0%	100.0%
Alcoscan	96.6%	85.2%	71.4%	*42.9%*	79.5%	100.0%
FC10Plus	90.3%	79.4%	*71.9%*	*29.4%*	76.5%	100.0%
AlcoBlow	100.0%	*79.4%*	*21.9%*	*0.0%*	63.2%	100.0%
Alcotest	88.2%	31.3%	6.3%	6.3%	45.1%	100.0%
PAS III	*95.2%*	*90.5%*	68.2%	*18.2%*	77.9%	100.0%

Shaded area denotes outside of manufacturers' recommendations for use.

* Includes alcohol-free breaths

**At manufacturer's recommended distance

ACTIVELY DRINKING SUBJECTS

Additional drinking subject testing was conducted during the dosing period after observing a 5-minute alcohol deprivation period to evaluate passive alcohol sensor performance in the presence of moderate amounts of mouth alcohol. A average of 30 subjects were tested on each passive alcohol sensor in this manner, using the manufacturers recommended testing distances or 4 inches where no recommendation was made.

Test Results: Actively Drinking Subjects

Result: **Five out of six of the passive alcohol sensors detected the presence of alcohol in 80% or more of the subjects tested.** The sixth passive alcohol sensor, detected only 45% percent of drinking subjects. Measurements of the subjects' actual breath alcohol concentrations were not possible in this part of the study due to the probability of mouth alcohol in the subjects, and no data was collected on alcohol-free subjects with only mouth alcohol.

Result: **Passive alcohol sensors detect alcohol more readily on persons who have recently been drinking.** The presence of alcohol in drinking subjects increases the ability of the passive alcohol sensor to detect alcohol, regardless of the source.

Result: **Due to the nature of the sampling mechanisms of the devices, the *source* of any alcohol detected cannot be known with complete certainty.**

OPEN CONTAINER TESTING

Open container testing was conducted on each passive alcohol sensor (more detailed information about the Chemical Test Section's analysis involving open container testing can be found in Appendix A of this final report).

Samples of headspace air from open beverage containers were analyzed on each passive alcohol sensor over three, two-day periods in conjunction with routine Breath Examiner Specialist Training. Alcoholic beverages tested included brandy, vodka, rum, and flavored vodkas. These were mixed with sodas (Pepsi Cola, Coca-Cola, RC Cola, 7-Up, Sprite, Sierra Mist, Barq's Root Beer) in diet and regular formulations, lemonade, orange and cranberry juices, or consumed without a mixer. Eighty-two percent of the beverage containers tested contained ice cubes. Passive alcohol sensor operators positioned the devices, on average, 3.4 inches (range 1-11) above the liquid surface for testing. The actual alcohol concentration of drinks being tested was not determined.

Test Results: Open Container Testing

Result: **Passive alcohol sensing devices vary widely in their ability to detect alcohol in beverages.** Four of the six passive alcohol sensors detected alcohol in more than eighty percent of the drinks that contained alcohol. The other two passive alcohol sensors detected alcohol in less than half the beverages containing alcohol. (please see Graph 8: Detection of Alcoholic Beverages).

Result: **"Non-alcoholic beverages can test positive on passive alcohol sensors.** The Chemical Test Section study included open container testing on a limited number of "non-alcoholic" beverages including Sprite, Pepsi, Mountain Dew, Coca-Cola, Diet Coke with lemon and orange juice. The results indicated that there are trace amounts of alcohol in these "non-alcoholic" beverages that can be detected by passive alcohol sensors. Other published studies on ethanol content of soft drinks and other beverages (that an average person would not expect to contain alcohol) are consistent with the Section's test results. These study results strongly suggest that individuals relying on passive alcohol sensors be aware of these findings. In addition, further testing of "non-alcoholic" beverages is recommended prior to selecting a passive alcohol sensor for open container testing.

Overall Results

Testing results from both human testing (i.e. controlled dosing, active drinking subjects) and laboratory testing, indicate two comprehensive results:

Result: **To ensure the best performance from passive alcohol sensors, they must be operated according to manufacturers' recommendations and must be part of a training program on their proper use.** Each sensor requires regular quality control checks, periodic calibration, and occasional replacement of batteries and fuel cells. The sensor users must also be trained in not only the proper use of sensors during a traffic stop, but also in the procedures for ensuring the analytical integrity of the devices through proper and regular maintenance.

Result: **The performance of the passive alcohol sensors diminished from the laboratory setting, to more "real world" controlled dosing studies.** Care must be taken when further extrapolating these test results to a less-than-optimal field environment where carefully controlled conditions do not exist. Conditions that can affect the performance of the sensors include the level of training of officers/users, environmental conditions such as cold and wind, the level of cooperation of subjects, and adherence to a periodic device accuracy monitoring program.

Additional National Studies Focusing on the Performance of Passive Alcohol Sensors

The following provides citations on additional laboratory studies conducted on passive alcohol sensors in other states *in addition to* the more recent laboratory investigations conducted by the Division of State Patrol, Chemical Test Section in 1994 and 2002.

***Cammisa, M.X.; Ferguson, S.A.; and Wells, J.K. 1996. Laboratory evaluation of PAS III sensor with new pump design. Arlington, VA: Insurance Institute for Highway Safety.**

The authors report results of an evaluation of a new version of the PAS III sensor with an improved pump and compare their results with a study conducted earlier by Lestina and Lund (see below) on an older version of the PAS III. Improved performance at greater test distances were reported. The PAS III is expected to correctly identify more subjects having a 0.10 percent BAC at a 10 inch test distance that the previous design did at 5 inches, with a reduction in the percentage of lower BAC subjects misidentified as having a high BAC. Expected detection rates for the PAS III were also calculated for BACs of 0.15, 0.10, 0.08, 0.05, and 0.02 percent. The PAS III achieved its best discrimination of drinking subjects at 0.10 and 0.02 percent BAC when held at a distance of five inches. A second study concludes that equivalent results can be obtained under laboratory conditions even with inexperienced sensor operators.

***Fiorentino, D. 1997. A laboratory study of passive alcohol sensors. Proceedings of the]4th International Conference on Alcohol, Drugs, and Traffic Safety (ed. Mercier-Guyon, C.), 539-45. Annecy, France: Centre d'Etudes et de Reserches en Medecine du Traffic (CERMT).**

Three passive alcohol sensors were studied with drinking subjects to examine the accuracy of the devices as a function of BrAC and measurement distance. Results indicate that if no alcohol is present in an individual's breath, the probability of a PAS's positive BrAC reading is zero. If alcohol is present, a PAS is more likely to underestimate than overestimate that individual's BrAC. Three inherent limitations of sampling ambient air are identified which make PAS suitable for detection but not precise BrAC measurement.

***Lestina, D.C. and Lund, A.K. 1992. Laboratory evaluation of two passive alcohol sensors. Journal of Studies on Alcohol 53:328-34.**

The National Patent Analytical Systems (NPAS) passive alcohol sensor and the Life-Loc PBA 2000 were evaluated in a laboratory environment to establish appropriate threshold measurements that indicate probable alcohol impairment. Both sensors were able to identify alcohol in exhaled breath with sufficient accuracy to identify people with high BACs. The performance of both sensors was related to the distance from

the subject's mouth. Under ideal laboratory conditions, the authors estimated that the Life-Loc could be expected to correctly detect 80 percent of drivers with 0.10 percent BACs (99 percent with 0.15 percent BACs) yet correctly identify only about one in eight drivers with 0.02 percent BACs as being impaired. The NPAS could be expected to correctly detect about 75 percent of drivers with 0. 10 percent BACs (97 percent with 0. 15 percent BACS) but correctly identifying only one in five drivers with 0.02 percent BACs.

Maryland State Police Experience

The Wisconsin State Patrol contacted the Maryland State Police in November 2002. The Maryland State Police indicated that a study that considered using passive alcohol sensors was discontinued pending the development of minimum standards/specifications and an approved product list by the U.S. Department of Transportation. Because this guidance was not developed, the Maryland State Police did not purchase any passive alcohol sensors and the devices have not been utilized.

Virginia State Police Experience

The Virginia State Police evaluated the reliability and practical usage of passive alcohol sensors in the early 1990s. Several devices were assigned to Troopers for use in their OWI enforcement efforts. According to W. Ken Paul, Director of Training for the Virgina State Police, the sensors utilized at that time were not a success due to observations that the devices were perceived as cumbersome and less reliable than the Trooper's natural senses. [21]

As of November 26, 2002, the Virginia State Troopers are evaluating a passive alcohol sensor manufactured by PAS Systems International. The device has been disseminated to Troopers in the field to provide feedback concerning usefulness, effectiveness, durability, and other attributes, positive or negative, to determine its applicability to OWI enforcement efforts. The anticipated completion date for this evaluation process is May, 2003.

[21] November 26, 2002 Email from W. Ken Paul, Jr. Captain and Director of Training of the Virginia State Police.

Chapter Four:

How Effective are Passive Alcohol Sensors in the Law Enforcement Environment?

Chapter Four: How Effective are Passive Alcohol Sensors in the Law Enforcement Environment?

Effectiveness of Passive Alcohol Sensors

The determination of "effectiveness" of passive alcohol sensors is measured by various standards depending on how law enforcement uses the device and how "effectiveness" is perceived.

Originally, "effectiveness" for the purpose of this study was defined as the ability of a passive alcohol sensor to *enhance* an officer's ability to sense the presence of alcohol and enhance the officer's job performance. This definition also includes a consideration for how *accurate* the device is. However, further study and discussion resulted in additional considerations in determining "effectiveness". For law enforcement, effectiveness can also be defined in terms of how *practical* the device is in the context of the officer's routine; that is if the device is convenient to carry on the officer's belt or in the officer's vehicle, and if it is easy to use during a traffic stop. For policy makers, effectiveness may be measured in terms of *providing deterrence* from impaired driving or enhancing public relations.

To identify perceptions focusing on the "effectiveness" of passive alcohol sensors, the study included discussions from the two focus groups formed by WisDOT to study passive alcohol sensors.

The **Law Enforcement Focus Group** met on September 4, 2002, and included law enforcement officers and officials representing all areas of the state. Some of the participants had used, or are currently using, passive alcohol sensors and some had knowledge of the devices but had not used them for enforcement (a complete list of participants is provided in Appendix C). The focus group's identification of the effectiveness of passive alcohol sensors included the following comments:

Overall Effectiveness

- Passive alcohol sensors are not as cost-effective as other tools (e.g., evidential and preliminary breath testers/PBTs), but agencies should be permitted to "keep their options open."
- Passive alcohol sensors may be too costly when considered in times of budget constraints and other costs.
- Do not ban the use of passive alcohol sensors; there are some instances where they may be useful.
- The decision of "effectiveness" should be left up to each individual law enforcement agency. The device is not necessarily economical for all agencies or all officers, so the decision of their effectiveness is an element of different law enforcement environments.

- Passive alcohol sensors can provide a "perception of enforcement" similar to that provided by marked law enforcement vehicles on a highway that indicate a police presence.
- Passive alcohol sensors may not be as well accepted by the general public, and thus less effective, as other law enforcement technology. The public is more accustomed to accepted law enforcement tools such as the Intoximeter EC/IR and PBT's.
- Passive alcohol sensors are less intrusive than other tools, requiring less contact with the public, and thus are more acceptable.
- The perception of accuracy of the devices varies:

    Some agencies state that the devices are "good" or "useful."

    Some agencies no longer use the devices due to consistently inaccurate readings.

    One agency reports that officers using the device have outperformed officers not using the device by a ratio of 2-1.

    There is *uncertainty* as to the accuracy of the devices.

    Problems with accuracy arise when using the devices incorrectly, such as using a cleanings alcohol-based hand gel; there are reports of false readings under those circumstances.

    The devices may not add any "value" to the traffic stop.

- Passive alcohol sensors have limited use; they do not measure alcohol levels nor determine impairment due to alcohol.
- The passive alcohol sensors may not be any more accurate than the officer's nose.
- Passive alcohol sensors may be useful in detecting odors when the officer has limitations due to colds or illness, or when other odors (e.g. offensive body odor due to uncleanliness or medical condition) mask the alcohol.
- Environmental conditions compromise the accuracy of passive alcohol sensors. Wind and cold experienced alongside a highway can affect sensor readings. Snowmobile OWI enforcement can create problems related to excessive wind, cold and operator helmets that restrict the ambient alcohol, resulting in inaccurate readings. Boat OWI enforcement is hampered by wind and gasoline odors that can affect readings.

    Staff note: In general, passive alcohol sensors can be operated at temperatures ranging between 0 and 105 degrees Fahrenheit depending upon manufacturer recommendations. Thus, Wisconsin weather extremes (i.e., temperatures below zero) can become a factor affecting the accuracy of some of the devices when used at traffic stops.

In summary, the law enforcement focus group generally was not certain that passive alcohol sensors could perform accurately in most conditions, if they were "cost effective" in relation to other available tools, or if they were effective in regards to public deterrence. However, the group was not ready to ban the devices based on the overall standards of accuracy and effectiveness, but rather would leave that decision up to each individual law enforcement agency or community.

A further discussion of the accuracy of the individual passive alcohol sensors is provided in the Chemical Test Section report found in Appendix A. In that report, laboratory and human test results reported some "false positives" with the devices.

Effectiveness in Terms of Practicality

When the law enforcement focus group considered the practicality of the devices, their consideration was in terms of space, both on the officer's person and in the officer's vehicle, as well as accessibility and use during a traffic stop.

- The officer may require two flashlights if one is used as a passive alcohol sensor and one is used as an actual flashlight. The passive alcohol sensor that is combined with a flashlight displays too low of a light to be useful to the officer as a source of light.
- The passive alcohol sensor can be another piece of equipment to be carried on the officer's belt (depending on the type of device), adding weight to the belt and taking up room on the belt.
- Officers want to focus on the overall behavior of the violator, not the reading of a passive alcohol sensor when making a traffic stop.
- Use of passive alcohol sensors may compromise officer safety. Devices that are used close to the violator's face can be grabbed by the violator and used as a weapon against the officer or other persons.
- Flashlights are not routinely used during daylight hours, creating confusion for the violator if the passive alcohol sensor/flashlight combination is used during a daytime stop.
- As a result of publicity about the devices, some drivers may not roll down their windows during a traffic stop for fear of their use, which could be counterproductive for the officer.
- Carrying a passive alcohol sensor/clipboard combination may be cumbersome at traffic stops and may actually hinder the officer.

The **Legal Focus Group** met on September 11, 2002, and included representation from all elements of the legal environment, specifically defense attorneys, prosecutors, a judge, privacy advocates, and the Attorney General's Office (a complete list of participants is found in Appendix D). The focus group's identification of "effectiveness" of passive alcohol sensors included the following comments.

Overall Effectiveness

- The opportunities for use of passive alcohol sensors by law enforcement are very limited, suggesting that they would be used in only 1 out of every 30 OWI traffic stops.
- Even if the devices are used infrequently, any effect passive alcohol sensors may have against OWI is useful.
- Law enforcement officers already have the authority to smell alcohol, so use of a passive alcohol sensor as a deterrent is a "silly" concept.
- If the law enforcement officer has the opportunity to see or smell the conditions at a traffic stop, why is an additional tool necessary?
- Traffic stops are already traumatic for many motorists and the use of a passive alcohol sensor only makes it more traumatic, resulting in a negative response from the general public.
- Passive alcohol sensors may be no more intrusive than other tools used by law enforcement; they are just another inconvenience that may or may not be effective.
- The use of passive alcohol sensors may elevate the conflict between privacy advocates and efforts to reduce impaired driving.
- Passive alcohol sensors have minimal benefit related to the costs for purchase and training.
- Funds could be spent on other documented technologies to combat impaired driving.

Effectiveness in the Judicial System

- Arrests and convictions for OWI violations do not depend upon just one tool but rather the use of many tools and procedures.
- Use of passive alcohol sensors may create a need for absolute sobriety if legal alcohol is given the same status as illegal substances.
- Any decline in alcohol-related deaths is not reflective of the technology used by law enforcement, but rather is reflective of new laws, fines and court opinions related to OWI.
- Infrequent use will have little impact in reducing the number of OWI convictions.
- There is no real problem with law enforcement use of passive alcohol sensors since they are not permitted as evidence as part of an OWI court case.
- The credibility of the law enforcement officer may diminish if they need to use a tool to smell alcohol.
- For prosecutors, the use of a passive alcohol sensor may be more effort than they are worth.
- It may be too difficult to distinguish between variance of colors (of the passive alcohol sensor display) to argue in court.

In summary, the legal focus group, like the law enforcement focus group, suggested that though passive alcohol sensors may not be a particularly effective tool, they should not be banned in Wisconsin but rather remain available for those law enforcement agencies and communities who want to use them.

National Studies Focusing on the Effectiveness of Passive Alcohol Sensors

From the national perspective, effectiveness has been tested in several studies going back as far as 1983. A review of the literature suggests that the use of passive alcohol sensors by law enforcement has been met with "mixed results." For example, there is data suggesting good results in the field (in terms of "ability to detect," "assistance with making the arrest," and "deterring drinking and driving") as well as less-than-optimal results ("problems in the environment," "inability to detect at lower BAC levels," "problems with detection due to performance" and "problems establishing statistical significance").

The following is an annotated listing of studies that focus on the effectiveness of passive alcohol sensors as an enforcement tool in different states. The studies were collected from the Insurance Institute of Highway Safety Website (indicated by asterisk *), the Michigan Department of Highway Safety and planning as well as from other sources.

The Michigan Experience – Excerpts Courtesy of the Michigan Office of Highway Safety Planning (OHSP)*

Michigan, in a similar situation to Wisconsin, has a statutory ban on sobriety checkpoints. The Office of Highway Safety Planning began a pilot study of PAS in June, 2000. Since Michigan cannot use sobriety checkpoints, the officers were asked to evaluate the sensors in their everyday duties, documenting their activities. The goal was to determine the effectiveness of the sensors in "routine" patrols for impaired drivers.

The Marquette City Police and the Marquette County Sheriff departments were chosen because of their location in the Upper Peninsula (to test effectiveness in cold weather). The Oakland County Sheriff Department participated because of their strong alcohol enforcement programs and full-time team dedicated to alcohol enforcement. Also selected to participate was the Western Michigan University Department of Public Safety. Along with officers from each of the departments selected, several Michigan State Police troopers were also selected to participate in those same areas.

Twenty-three officers attended an eight-hour training session prior to using the sensors. The training consisted of the proper use of the sensor, legal issues, how to complete minor repairs, and reporting requirements. They also were required to work with the media during the use of the program and informed of the importance of the

media aspect. After completing the training the officers could trouble shoot any problems, calibrate the instrument, and instruct other officers in use of the device for the future.

The program ran from June 2000 – March 2001. The officers completed evaluation reports: the majority of the officers felt that the sensor was a benefit to them as it enhanced their abilities to detect alcohol, however, most officers could detect its presence prior to the sensor being activated. The sensor did confirm their suspicions and at that time, the officers would proceed with their normal investigations.

Officers viewed the sensor as another "tool" at their disposal. In their opinion, the sensor was extremely useful when screening a large group of underage drinkers. The officers also stated that the sensor was useful in determining if there was open alcohol present without having to personally smell contents of containers (with the potential for danger because of the different types of drugs that are being manufactured today). Some citizens mentioned Fourth Amendment violations. During the initial training, the officers learned that the sensor did not violate the Fourth Amendment because it is not considered a search – it is a "plain view" situation.

Officers were encouraged to advise their local prosecutors of the use of the sensor. Every prosecutor in the pilot area accepted the sensor as an "extension of the officer's nose." During training, the officers were instructed that this device is not accepted as evidence in court. An Oakland County Deputy stated that it was brought up in a preliminary exam but the defense attorney did not challenge it. Not one case was documented where the sensor was challenged.

Some adjustments will be recommended to the manufacturer of the sensor as a result of this pilot. The switches can be improved for easier use and the bulb strength should be increased. The manufacturer has received these same comments from others and adjustments are in progress.

The majority of the public's response was supportive. The media supported the program and published many articles in local newspapers and television.

**Source: Michigan Office of Highway Safety and Planning, http://www.ohsp.state.mi.us/news/SummerSafetyNetwork2001.htm*

Additional comments on the Passive Alcohol Sensor Program from the Michigan State Police:

Staff Note: Wisconsin State Patrol staff conducted follow-up by email and telephone in November 2002 with Sergeant Perry Curtis, Michigan State Police (MSP) regarding their experience and opinions of the passive alcohol sensor program. The following comments were noted:

- Officers from local agencies, Sheriff Deputies and State Troopers participated in the evaluation. All officers received 8 hours of training consisting of how to use the sensor, legal issues concerning the sensor, minor repair and calibration of the sensor, and evaluation reporting requirements. Training on use of the devices was provided by OHSP, not the manufacturers or law enforcement.
- Neither the MSP nor the OHSP did any laboratory testing of the devices.
- MSP used the PAS flashlight device by PAS Systems International but Sgt. Curtis did not know why that particular device was chosen.
- Most officers found that the sensor was an additional tool. Most officers reported that they usually detected the odor of intoxicants prior to activating the sensor, though some reported that the sensor did indicate alcohol when they did not sense its presence with their nose.
- The sensor was helpful in detecting alcohol in open containers.
- The sensor received a tremendous amount of media coverage for impaired driving, which is hard to get.
- Negative comments about the sensor included that the switches were hard to activate, that the light portion of the sensor was too dim, and that it was not very useful in cold weather. The biggest concern for officers was that the sensor needed to be very close to the subject's mouth to get a sample.
- The evaluation showed that the sensor is not for all officers, but that it is an additional tool for an officer interested in removing impaired drivers from the highways.
- OHSP is buying all of the sensors being used by law enforcement in the state. The Michigan State Police are not purchasing any of the instruments. MSP don't feel the sensors are cost effective; they are purchasing preliminary breath testers (PBT). A PBT can be used as a screener and also as a breath tester with a BAC result.
- Officers testing the device sent in quarterly reports on the devices to OHSP.
- Sgt. Curtis stated that the MSP would not be purchasing these devices because they were "not cost effective" and they stopped working only after a short time.
- Sgt. Curtis only used his device when giving talks, not when out on the road.
- The use of the devices is promoted by the Office of Highway Safety and Planning (OHSP), not law enforcement; OHSP ensured that there was wide media coverage.
- There appeared to be no conflict with the 4th amendment; it became a non-issue.

The Use of Passive Alcohol Sensors in Conjunction with Sobriety Checkpoints in Other States and General Deterrence Value

Passive alcohol sensors are sometimes used as a tool to assist law enforcement as part of random testing conducted at roadblocks or sobriety checkpoints. Again, note that alcohol sobriety checkpoints are prohibited in Wisconsin State Statutes 349.02(2)(a). Therefore, use of passive alcohol sensors in Wisconsin has been primarily limited to routine traffic enforcement. **Therefore, no direct correlation should be drawn between the results of these studies and Wisconsin's experience in the field**. **These studies cannot be used as arguments to support or refute the possible application of sobriety checkpoints in Wisconsin.** Rather, these studies should only be used to document how passive alcohol sensors have been used with sobriety checkpoints in other states and their reported results.

***Ferguson, S.A.; Wells, J.K.; and Lund, A.K. 1995. The role of passive alcohol sensors in detecting alcohol-impaired drivers at sobriety checkpoints. Alcohol, Drugs, and Driving 11:23-30.**

Police officers using standard checkpoint procedures identified 26 percent of drivers with 0.05-0.10 percent BACs and 55 percent of drivers with BACs of 0.10 percent or greater. When officers used passive sensors, these detection rates increased to 39 percent and 71 percent, respectively. The authors noted that research on checkpoints demonstrates their value in creating general deterrence. However, the authors also stated that passive alcohol sensors are unlikely to lead to the detection of all alcohol-impaired drivers at sobriety checkpoints due to performance problems (e.g., the sensor samples a mixture of ambient air and breath which dilutes the concentration of alcohol in the sample and wind can also affect the sample).

***Farmer, C.M.; Wells, J.K.; Ferguson, S.A.; and Voas, R.B. 1998. Field evaluation of the PAS III passive alcohol sensor. Journal of Crash Prevention and Injury Control 1:55-61.**

Data from a 1996 nationwide survey, in which 5,392 drivers were evaluated for alcohol using both PAS III (a passive sensor housed in a flashlight) and evidential breath test devices, have allowed the determination of appropriate criteria at various blood alcohol concentrations (BAC) for detecting impaired drivers in the field. According to the results of this study, the PAS III identified about 75% of the drivers with BACs at or above 0.10% and 70% at or above 0.08%. The authors claim that this is a "vast improvement" over the detection rate by law enforcement officers that do not use passive alcohol sensors. The authors noted that because females expel smaller volumes of breath when speaking than males, PAS devices are potentially less reliable for females than males. It was noted that correlation values were "significantly lower for females than for males" (0.64 versus 0.72 using chi square test).

***Foss, R.D.; Voas, R.B.; and Beimess, D.J. 1993. Using a passive alcohol sensor to detect legally intoxicated drivers. American Journal of Public Health 83:556-60.**

Based on 1,145 cases of randomly stopped drivers in Minnesota, Foss et al found that at four BAC levels (.10, .08, .05, .02) decisions using the passive alcohol sensors were correct in more than 95 percent of the cases. Measurements were taken easily and quickly with the passive sensor whose readings "correlated very strongly (r = 0.87) with the evidentiary device. The authors noted that passive alcohol sensors add value in processing motorists at sobriety checkpoints as well as providing general deterrence.

Homel, R. Policing the Drinking Driver: Random Breath Testing and the Process of Deterrence. Sydney, Australia: Federal Office of Road Safety; 1986.
-and-
Homel, R. Crime on the Roads: Drinking and Driving. Australian Institute of Criminology; 1989 Conference Proceedings on Alcohol and Crime; Canberra, Australia.

An extensive, random breath testing campaign involving 923,272 preliminary breath tests (one test for every three licensed drivers) was conducted in South Wales, Australia from December 1982 to December 1983. The campaign took place utilizing sobriety checkpoints and routine highway patrol efforts and was combined with a large-scale media blitz. No attempt was made to emphasize the penalties as the focus was placed on the threat of arrest and humiliation for those who would be caught. Survey data was collected within the first few months of the program supporting the thesis that there was a deterrence effect. For example, 40 percent of respondents claimed that random breath testing made it easier to resist the pressure to drink in a group situation. It is also interesting to note that the average number of drivers killed with a blood concentration of .05 or more dropped 36 percent in the four years after the program.

Although this study used preliminary breath tests (as opposed to passive alcohol sensors), it still underscores the fact that overt and highly publicized uses of breath testing technology can affect drinking and driving behaviors solely based on the perceived risk of being caught.

***Jones, I.S. and Lund, A.K. 1986. Detection of impaired drivers with a passive alcohol sensor. Journal of Police Science and Administration 14:153-60.**

In October and November 1984, passive sensors were used at checkpoints in Charlottesville, VA. According to the evaluation, the use of the sensor significantly improved the detection rate of impaired and intoxicated drivers. When the sensor was not in use, police officers detected 45 percent of the drivers with BACs of .10 and greater and 24 percent of drivers with BACs between 0.05 and 0.099. When the

passive alcohol sensor was used, these detection rates reportedly increased to 68 percent of drivers with BACs of .10 or greater and 45 percent of drivers with BACs between 0.05 and 0.099. The authors also noted that the use of the passive alcohol sensor reduced the false positive rate. For drivers with BACs between 0.02 and 0.049, the proportion detained unnecessarily dropped from 18 percent to 8 percent. The proportion of drivers with very low BACs detained (between 0.00 and 0.019) dropped from 2 percent to 1 percent. The authors concluded that the results show that a passive alcohol sensor can increase both the effectiveness and the efficiency of drunk driving enforcement efforts. In turn, this may have some effect on the public's perceived likelihood of detecting alcohol-impaired drivers.

***Lund, A.K. and Jones, I.S. 1987. Detection of impaired drivers with a passive alcohol sensor. Proceedings of the 10th International Conference on Alcohol, Drugs, and Traffic Safety, 379-82. Amsterdam, the Netherlands: Elsevier Science Publishers B.V.**

The authors examined the impaired driver detection rates with and without passive sensors of officers in San Diego, CA and Chattanooga, TN working special DUI patrol. Special patrols use officers dedicated exclusively to DUI enforcement, and officers selected for special patrols typically have more extensive experience and training in DUI detection than other officers. According to the results, officers were more effective detecting drivers with BACs above 0.10 when they had the sensor than when they did not. However, the authors concluded that the difference was not as statistically significant or impressive as the Charlottesville checkpoint study (Jones, I.S. and Lund, A.K. 1986). Moreover, the PAS had "no effect" on the detection of drivers with BACs between 0.05 and 0.10.

According to the authors, the "most striking finding" was the very high effectiveness of the Chattanooga officers, who arrested 94 percent of the drivers with BACs over 0.10 with the sensor and 88 percent without it compared to 63 and 56 percent for San Diego officers. The authors indicated that the high arrest rate was also high among drivers with BACs between 0.10 and 0.15. The false positive rate was reported to be very low in both patrols. In San Diego, only 4 percent of the drivers with BACs under 0.05 were arrested without the sensor, and only 3 percent with the sensor (again, this difference does not appear to be statistically significant). In Chattanooga, only one percent of drivers with low BACs were arrested.

Chapter Five:

Study Summary and Findings

Chapter Five: Study Summary and Findings

Passive alcohol sensors are designed to provide a qualitative, not quantitative assessment, of the presence of alcohol. According to the literature, passive alcohol sensors are intended to serve as a useful indicator of the presence of alcohol in the air within the motor vehicle to assist an officer during a traffic stop. However, unlike an evidential or a preliminary breath test, a passive alcohol sensor cannot be used to measure how much alcohol a person has consumed, and the results from a passive alcohol sensor cannot be used as evidence in court.

At this time, the State Patrol Chemical Test Section does not recommend the use of passive alcohol sensors for traffic enforcement in Wisconsin. Passive alcohol sensor testing conducted in 1994 and preliminary testing conducted in relation to this study have not provided results that would lead the Chemical Test Section to recommend any of the tested devices. Therefore, passive alcohol sensors that are used in WI are not supported by the Chemical Test Section meaning any evaluation, calibration, accuracy checks, maintenance, repair, operator training or certification is the responsibility of the agency choosing to use a passive alcohol sensor for purposes of traffic enforcement.

Six companies nationwide currently manufacture passive alcohol sensor devices at costs typically ranging between $300 and $700. Given that the relative price of preliminary breath test (PBT) technology is similar to that of passive alcohol sensors, and because a PBT can make an initial quantitative measurement of the amount of alcohol that is consumed by a person, some law enforcement agencies may choose to use a PBT device instead of a passive alcohol sensor for OWI traffic stops. However, it is important to note that there may be some situations in which the law enforcement officer may prefer to passively sense the presence of alcohol (e.g., as part of a crash investigation involving an unconscious individual).

Passive alcohol sensors are manufactured in many different shapes and sizes. Some passive alcohol sensor devices can sense the presence of alcohol without the subject/driver being aware that they are actually being "sensed." This type of sensor is seen by some as being "covert." Law enforcement officers have used this type of enforcement effort for teen parties or at large events where alcohol can be problematic. However, as discussed in Chapter Two, privacy concerns have been raised by the public, law enforcement, and the legal community regarding the use of these covert-type style devices.

Passive alcohol sensors are designed to supplement a law enforcement officer's natural senses. Passive alcohol sensors can assist an officer who is experiencing problems with distinguishing between different odors in the environment (e.g., car exhaust, cigarette smoke, breath mints used by subjects to cover up alcohol) or who may have a temporary or medical condition that interferes with an officer's ability to detect alcohol.

Passive Alcohol sensors have been used in the past in Wisconsin to help confirm an officer's suspicions that a person has been drinking, as a tool to help change drinking and driving behavior, to assist in crash investigations, and to help enforce absolute sobriety laws involving juveniles, repeat drunk drivers, and commercial truck drivers.

Passive alcohol sensors, however, cannot be used to determine if a driver is impaired. Again, passive alcohol sensors present only a qualitative indication that a person may have been drinking. The determination of whether a person is impaired depends upon standard sobriety testing, which includes the law enforcement officer's individual professional judgment, as well as field sobriety tests and evidential testing (e.g., Intoximeter EC/IR).

Passive alcohol sensors have the capability of protecting an officer from inhaling odors, drugs and other harmful chemicals that may be present at a traffic stop. Officers are sometimes exposed to other chemicals and fumes which are unknown to the officer. A passive alcohol sensor is designed to detect alcohol to help minimize the risks to the officer.

Passive alcohol sensors have also been used for situations beyond traffic enforcement. In addition to traffic enforcement, passive alcohol sensors have been used in schools and the workplace to help identify drinking and to support zero tolerance policies as well as to evaluate commercial drivers, railroad engineers, airline pilots and commercial boat operators

In the absence of a U.S. Supreme Court or State Supreme Court decision testing the constitutionality of passive alcohol sensors this study concludes that the use of passive alcohol sensors for traffic enforcement does not conflict with the well established guidelines and procedures governed by the Fourth Amendment to the U.S. Constitution, including the principles of probable cause and reasonable suspicion. If passive alcohol sensors are used by law enforcement in accordance with proper legal procedures, individual privacy rights will not be violated. This finding is based on the legal tests and constitutional principles that have been applied in this study that are consistent with previous opinions by the courts.

Although the use of passive alcohol sensors does not appear to conflict with the provisions and exceptions of the Fourth Amendment to the U.S. Constitution, concerns about "the erosion of privacy rights" still remain. "Safeguarding the public's right to privacy" was a commonly held concern that was shared by the legal and law enforcement focus groups as well as by the public (refer to the Omnibus Survey). Both focus groups emphasized the need to follow correct search and seizure procedures, including the need to have reasonable suspicion and probable cause before any testing of a suspected impaired driver could take place. With respect to covert uses of passive alcohol sensor devices, several focus group members from both groups, including attorneys and law enforcement officers, were also concerned about the public perception and correct use of the devices. It was suggested that if covert-

style devices were to be used, a set of law enforcement agency policies must be put in place requiring notification to the driver that a passive alcohol sensor is being used. There was a particular concern among several members of the law enforcement focus group that promoting the public's trust in law enforcement is an important element for the law enforcement community

Several members of the legal focus group and the law enforcement focus group suggested that passive alcohol sensors should not be banned entirely. Although many focus group participants questioned the cost effectiveness and the usefulness of passive alcohol sensors in obtaining convictions, many also suggested that the decision to use these devices should be left to each individual law enforcement agency because there may be particular situations unique to each community that may warrant their use.

In addition, several members of the legal and law enforcement focus group indicated that if passive alcohol sensors were permitted, that it would be prudent and necessary to have policies in place to guide their use. These policies include: requirements for training for law enforcement officers on legal issues and operational techniques for using and maintaining the devices, notification to the driver/subject that the passive alcohol sensor is going to be used to obtain a sample of the driver's breath, and agency guidelines on the conditions that permit the use of the devices. It was also suggested by one member of the law enforcement focus group that the state legislature consider legislation requiring a trial phase during which a selected number of law enforcement agencies test the device and collect data on its accuracy and effectiveness for use in subsequent discussion on the devices.

The results of the laboratory analysis indicate the need for caution when considering whether to employ a passive alcohol sensor in law enforcement situations. Performance of passive alcohol sensors varies and, even under laboratory conditions, they did not approach the dependability experienced through the use of breath alcohol testing devices already approved for use in Wisconsin. Law enforcement agencies and communities considering use of a passive alcohol sensor need to be aware of the limitations of the device and be prepared to conduct additional evaluations to clearly define the field situations in which they are reliable.

Based on previous national studies from laboratory tests, passive alcohol sensors have been shown to be more sensitive to higher breath alcohol concentration than to lower breath alcohol concentrations. National studies of passive alcohol sensor instruments under laboratory conditions reveal that alcohol can be effectively detected at least 75% of the time for BACs of 0.08. Also, it was found that "accuracy" of the device also depends on the distance between the instrument and the subject's mouth, which averaged between 5 and 8 inches.

"Effectiveness" is a subjective term because its meaning varies from one law enforcement agency or officer to another. According to representatives of the law enforcement community and the literature, "effectiveness" of passive alcohol

sensors varies depending upon the unique circumstances that they are being used for, and how well the devices actually perform. As indicated in this report, passive alcohol sensors can be effective tools for traffic enforcement including such uses as creating a "perception of enforcement" to help deter drinking and driving, increasing a law enforcement officer's ability to detect alcohol if they have a cold or olfactory condition, or to assist in crash investigations .

Passive alcohol sensors have limitations. A passive alcohol sensor's sole function is to make a *qualitative* assessment of whether there is alcohol in the immediate vicinity of the driver – it cannot be used to measure blood alcohol content or determine impairment. Also, misleading readings may occur from the device's sensing of perfume, cologne, mouthwash, medicine or some other product that contains alcohol. In some cases, the officer will not be able to assume that the alcohol that has been detected is emanating from the subject rather than from another area , such as a spill on the floor. Furthermore, external environmental factors such as wind and cold temperatures, common phenomena in Wisconsin, can interfere with the functioning of the device. Finally, the technology is not absolutely foolproof and malfunctions are possible.

Public trust is important to law enforcement agencies. Several focus group members indicated the need to enhance the public's trust in law enforcement through the development of policies that ensure that citizens' rights are being upheld (see Chapter 2). This includes training officers in the proper use of the device as well as the legal and constitutional requirements that are part of any traffic stop. Training on the use of passive alcohol sensors appears to be an important indicator of the effectiveness of using the device.

Findings

- Passive alcohol sensors are designed to only provide a qualitative not quantitative assessment of the presence of alcohol.
- Although passive alcohol sensors are technically similar, they are manufactured in different shapes and sizes.
- Passive alcohol sensors have been used on a limited basis in Wisconsin to assist in traffic law enforcement.
- Passive alcohol sensors can be used by law enforcement and others for non-traffic applications.
- Existing case law and legal opinion have not identified a conflict between the correct use of passive alcohol sensors by law enforcement for traffic enforcement and the 4th Amendment to the U.S. Constitution.
- The use of passive alcohol sensors raises concerns about privacy rights and compliance with laws regulating searches and seizures.
- Many participants of the law enforcement and legal focus groups indicated that passive alcohol sensors should not be banned for use in traffic law

enforcement in Wisconsin. Some suggested that banning the devices would not serve a constructive purpose and the devices are another tool that should be made available for use in accordance with individual law enforcement agency and community needs.

- The public's perception of law enforcement use of passive alcohol sensors may provide a deterrent to impaired driving.
- The performance of passive alcohol sensors during testing was variable and even under laboratory conditions these devices did not approach the degree of dependability inherent in the qualitative devices that are already approved for use in Wisconsin. This lack of dependability was particularly evident during the testing of drinking subjects.
- Due to the nature of the passive alcohol sensors' sampling methods, the source of any detected alcohol cannot be known with complete certainty.
- The determination of "effectiveness" of passive alcohol sensors is measured by various standards, including:
  e) accuracy of each device as indicated by scientific testing;
  f) use of the devices as a public deterrence to impaired driving;
  g) cost of the devices for law enforcement in relation to the cost of other impaired driving detection tools;
  h) ease of implementation of the devices into law enforcement practices and policies.
- Passive alcohol sensors, like other technology, can be abused or used improperly by their operators resulting in information that could incorrectly characterize the drinking status of the driver/suspect.
- Research and data identified in Wisconsin studies do not indicate that the use of passive alcohol sensors influences the detection or conviction of alcohol-impaired drivers.
- Due to performance differences under varying environmental and weather conditions, there is a definite need for caution when considering the use of passive alcohol sensors for traffic law enforcement.

Appendices

Appendix A: Results/Documentation from the Chemical Test Section Performance Evaluation of Passive Alcohol Sensors

Appendix B: Different Examples of Passive Alcohol Sensors and Their Characteristics

Appendix C: Results from the Law Enforcement Focus Group Session held on September 4, 2002

Appendix D: Results from the Legal Focus Group Session held on September 11, 2001

Appendix E: Kernats, Michael. *Inspection, Search and Seizure of Motor Vehicles and Drivers*. Wisconsin Department of Transportation, Office of General Counsel (July, 2002).

Appendix F: Grey, Shenequa, L. *Passive Alcohol Sensors and the Fourth Amendment*. Published in Spring 2001 Issue of *the Impaired Driving Update*,. Civic Research Institute, Inc., Kingston, New Jersey.

Appendix A: Results/Documentation from the Chemical Test Section Performance Evaluation of Passive Alcohol Sensors

A Study on the Use and Effectiveness of Passive Alcohol Sensing Devices (PASD)

Phase 1 – Technical Analysis

Part B - Unit Testing

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Introduction

An evaluation of passive alcohol sensing devices (PASD) marketed in the United States was undertaken by the Chemical Test Section (the Section) to evaluate their performance under both laboratory and controlled drinking settings. Professional contacts and a search of the Internet yielded a list of six PASD manufacturers doing business in the United States. These six manufacturers were contacted to determine their willingness to participate in the study. Each of the contacted manufacturers agreed to participate and provided a single device for the duration of the study. Each device was shipped with pertinent documentation including technical data sheets, training videotapes, manuals, etc. Testing was conducted from May through October 2002 by the Section chemist and other Section staff. Section staff was trained by the Chemist in the proper use of each device prior to testing.

General operation of a PASD consists of pointing or directing its sampling port to a subject's mouth from a distance that varies by manufacturer. Depending on the device, the operator instructs or encourages the subject to breathe, blow or speak at the device while an air sample is obtained. The analytical method employed by the devices to detect ethanol is the fuel cell, which is common to other breath alcohol testing devices used in Wisconsin including preliminary breath tests (PBT) and the Intoximeter EC/IR, the State's current evidential breath testing device. The fuel cell then analyzes the sample, quickly providing a result in the form of either a numerical readout, indicator lights which display zero, low, or high amounts of alcohol, or a 'P' (Pass) / 'F' (Fail) display indicating the absence or presence of alcohol, respectively. According to manufacturers literature, the devices are ready for a subsequent test within two to thirty seconds after a negative air sample and within twenty seconds to two minutes after an alcohol-laden air sample is tested.

Methods and Materials

See Page 83, PASD Features, for a comparison of specific features for each unit tested.

A) Laboratory Studies

Accuracy testing was conducted on July 5 and October 18, 2002 in the Section laboratory under tightly controlled conditions. Single analyses of simulated breath at six breath alcohol concentrations: 0.00, 0.02, 0.04, 0.08, 0.10, and 0.20 g/210L, using characterized breath alcohol simulator solutions ((Lot #s 0204, 0105 and 0206, 0106, 0205 and 0207, and 0203, respectively) were tested. These breath alcohol concentrations represent important statutory benchmarks and breath concentrations commonly encountered in traffic enforcement. Human breath was blown into the inlet port of the simulators to produce the samples and towards each PASD from distances of 1, 4, 6, 12, and 18 inches using Guth Model 210021 Simulators at 34 degrees Celsius (SN DR1402, DR1423, and DR1424). Distances were verified with a standard ruler. Immediately before and after testing, each PASD was tested with a 0.100 g/210L simulator solution (Lot #0205), using PASD manufacturers' recommended procedures for confirming calibration. The simulator solutions themselves were tested at the beginning, middle, and end of the testing period with a calibration verified Alco-Sensor IV (Intoximeter, Inc), SN 30794 and 38995.

B) Controlled Dosing Studies

Drinking subject testing was performed with each PASD over three, two-day periods: May 29 - 30, 2002 at the Oregon Community Center, July 9 - 10, 2002 at Janesville Job Center and October 15 - 16, 2002 at the Wisconsin State Patrol Academy, Tomah, in conjunction with routine Breath Examiner Specialist Training. Breath Examiner Specialist Training provides instruction to law enforcement personnel in the proper operation of the Intoximeter EC/IR, Wisconsin's evidential breath alcohol testing instrument. PASD were operated by Section personnel, trained by the Section Chemist in the manufacturers' procedures for routine use. Volunteer subjects were student breath examiner specialists, who, as a routine part of their instruction, volunteer to drink alcoholic beverages thereby providing drinking subjects for other breath examiner specialists in training. These volunteers were apprised of the purpose of the study and proved compliant with the PASD operators throughout the study period. The rooms where the PASD testing was performed were maintained at comfortable draft-free room temperatures. PASD were checked for accuracy using manufacturers procedures both before and after controlled dosing testing using a Guth Model 21002 Simulator with a 0.10 g/210L solution (Lot #0205 or #0207).

Volunteers were provided sufficient alcohol, consumed in one hour, to achieve a maximum breath alcohol concentration of 0.10 g/210L, and were under close supervision by Section personnel. The Intoximeter EC/IRs used in this study were properly calibrated and performed flawlessly throughout the study. Subjects were tested from 35 minutes to 2.75 hours after their last drink, ensuring the subjects had no alcohol in their mouths during testing. EC/IR breath alcohol concentrations of the subjects averaged 0.045 g/210L (range 0.00 to 0.09 g/210L). PASD results were compared to Intoximeter EC/IR results taken within 15 minutes of the PASD tests. An average of 29 people (range 21-34) were tested on each PASD at one, four, and six inches from the subjects' mouths, representing the range of operating distances recommended by the manufacturers. An average of 14 subjects (range 10-17) were also tested with each PASD with samples obtained from a distance of twelve inches.

Additional human subject testing was conducted during the dosing period after observing a 5-minute alcohol deprivation period to evaluate PASD performance in the presence of moderate amounts of mouth alcohol. An average of 30 subjects (range 16-40) were tested on each PASD in this manner, using the manufacturers recommended testing distances or 4 inches where no recommendation is made. At one of the testing sites, the room containing the drinkers was approximately 80 degrees Fahrenheit. A sample of the room's air tested positive for alcohol when testing the CMI AlcoBlow and the Lifeloc FC 10 Plus. For this reason, the testing of these two devices was suspended.

C) Open Container Testing

Samples of headspace air from open beverage containers were analyzed on each PASD over three, two-day periods: May 29 - 30 at the Oregon Community Center, July 9 - 10 at Janesville Job Center, and October 15 - 16, 2002 at the State Patrol Academy, in conjunction with routine Breath Examiner Specialist Training. An average of 27 alcoholic beverages (range 16-33) were tested by

each device. Alcoholic beverages tested included brandy, vodka, rum, and flavored vodkas. These were mixed with sodas (Pepsi Cola, Coca-Cola, RC Cola, 7-Up, Sprite, Sierra Mist, Barq's Root Beer) in diet and regular formulations, lemonade, orange and cranberry juices, or consumed without a mixer. Eighty-two percent of the beverage containers tested contained ice cubes. PASD operators positioned the devices, on average, 3.4 inches (range 1-11) above the liquid surface for testing. The actual alcohol concentration of drinks being tested was not determined.

Results

A) Laboratory Studies

Calibration testing of each PASD both before and after accuracy testing confirmed the units were in good calibration throughout the study. Analysis of simulator solutions used in the PASD study showed no significant depletion of alcohol.

Table 1 contains the accuracy testing results, showing how predictably each PASD could detect alcohol in the simulated breath presented to it from five different distances. Five of the six devices detected alcohol 100% of the time when alcohol-containing breath was presented to the PASD from distances of 6 inches or less. Performance at longer distances decreased to the point that at 18 inches only one-half of the units could detect alcohol 80% of the time or more. None of the PASD manufacturers included in this study recommends PASD at distances greater than 10 inches from the subject in question. Five out of six of the PASD properly detected alcohol in all of the simulated breaths, when samples were obtained within the manufacturers recommended distances.

Five of six of the PASD detected alcohol in simulated breath at six inches or less.

Table 2 is a summary of PASD performance when presented with simulated alcohol breath containing differing breath alcohol concentrations. This data includes all simulated breath samples regardless of distance from the simulator. False positives were evident with only one device, the PAS III Flashlight. The other five PASD correctly detected no alcohol when alcohol-free simulated breath was presented. All devices detected simulated breath alcohol in concentrations of 0.02 - 0.04 g/210L between 60-100 % the time. Performance improved as the concentration of alcohol in the simulated breath increased. Five of the six PASD could detect simulated breath alcohol concentrations of 0.08 g/210L and greater.

PASD detected alcohol in simulated breath at concentrations of 0.02 - 0.04 g/210 from 60% to 100% of the time.

B) Controlled Dosing Studies

Calibration verification of each PASD both before and after controlled dosing studies confirmed the units were in good calibration.

Table 3 summarizes performance of PASD on drinking subjects sampled at four different distances versus contemporaneous Intoximeter EC/IR tests. The Average score listed in Table 3 includes the results of alcohol free breaths measured prior to dosing. The data show that when PASD were used at distances greater than one inch, one-half or more of them failed to detect breath alcohol more than 80% of the time. Operation of the PASD at 12 inches yielded only one device with a greater than 50% chance of detecting alcohol in known drinkers. When used at the manufacturers recommended operational distances, only two devices, the Intoximeter Alco-Sensor III with Quick Draw, and the CMI AlcoBlow detected alcohol in more than eighty percent of the drinking subjects.

When used at recommended distances, only two PASD detected alcohol on more than 80% of the drinking subjects.

Graphs 1 - 6 summarize individual performance of each PASD in comparison to contemporaneous Intoximeter EC/IR tests at all distances studied. In Graphs 1 - 4, the Y axis (vertical axis) duplicates the manner in which each device provides a result. The X axis (horizontal axis) provides a score at each response level.

Graph 1 Alcohol Countermeasures Systems Alcoscan
The Alcoscan provides a result in the form of three colored lights, each predicting a specific range of breath alcohol concentration: Green= 0.000 - 0.019%, Yellow= 0.020 - 0.049 % and Red= greater than 0.049%. This device properly categorized breath alcohol concentrations in 94% of the subjects in the Green range, 43% of the subjects in the Yellow range and 55% of the subjects in the Red range. The numbers of observations in each category were 17, 47, and 47 respectively.

Graph 2 CMI AlcoBlow
The AlcoBlow also provides results in the form of three colored lights, each predicting a specific range of breath alcohol concentration: Green= less than 0.010%, Yellow= 0.010 - 0.020% and Red= greater than 0.020%. This device properly predicted breath alcohol concentrations in 100% of the subjects in the Green range, 33% of the subjects in the Yellow range and 49% of the subjects in the Red range. The numbers of observations in each category were 22, 3, and 22 respectively.

Graph 3 Draeger Safety Alcotest 7410
The Alcotest provides results with a “P” for Pass and “F” for Fail approach. “P” predicts the absence of any alcohol or 0.00 g/210L, while “F” predicts alcohol in any concentration exceeding 0.00 g/210L. The device properly predicted the absence of alcohol in 100% of the persons in the “P” category, and 36% of the subjects in the “F” range, (in our study, 0.01 - 0.09 g/210L), with 18 and 115 observations in each category, respectively. The lower graphic in Graph 3 separates the “F” group into two categories, 0.01 - 0.04 g/210L and 0.05 - 0.09 g/210L to see if any performance improvement would occur at higher breath alcohol concentrations. In the individuals with breath alcohol concentrations of 0.01 - 0.04 g/210L, 33% of them were detected, while 41% of the 0.05 - 0.09g/210L group were detected, with 61 and 54 observations made in these categories respectively.

Graph 4 PAS Systems International PAS III Flashlight

The PAS III Flashlight uses a nine bar display that illuminates successive indicator lights from Green to Yellow to Red, with increasing alcohol concentrations. The first Green bar indicates 0.01 %, the second Green 0.02%, the first Yellow 0.03%, the second Yellow 0.04%, the third Yellow 0.05%, the fourth Yellow 0.06%, the first Red 0.08%, the second Red 0.10 % and the third Red 0.12%. The final two red lights were omitted from the graph, as no experimental data exists at those concentrations. The PAS III Flashlight correctly predicted 100% of the alcohol free subjects, none of the subjects at breath alcohol concentrations of 0.01%, 0.02%, or 0.03%, 7% of subjects at 0.04%, 15% of subjects at both 0.05% and 0.06%, and 33% of subjects at 0.08%. The numbers of observations in each category were 11, 6, 8, 10, 15, 20, 13, and 7. The 2002 instruction manual provides the above indicated display interpretation but, according to Mr. Jarel Kelsey of PAS Systems International, the PAS III Flashlight's ability to predict a person's breath alcohol concentration is being de-emphasized in company training materials. These data support this objective. In addition, Mr. Kelsey indicates that PAS Systems International offers an alternate calibration of the device that would increase sensitivity at lower alcohol concentrations while further reducing the device's ability to predict coexisting breath alcohol concentrations.

Graph 5 Intoximeter Alco-Sensor III with Quick Draw

The Alco-Sensor III is a preliminary breath-testing device (PBT) outfitted with the Quick Draw attachment to allow for passive sampling. Results are displayed in a three decimal place numerical readout. The Alco-Sensor III is a PBT that is approved for use in Wisconsin and is highly accurate and precise when used as a PBT, however that level of performance is drastically reduced with the addition of the Quick Draw attachment. Graph 5 illustrates the relatively poor linear relationship between the EC/IR results and this PASD. A linear regression equation showing perfect agreement between two data sets is: $y = 1.00x + 0.0$. The slope of this linear regression analysis indicates that the Alco-Sensor III with Quick Draw detects about ten percent of a known breath alcohol concentration, with the correlation coefficient (r^2) indicating a very weak relationship between the two sets of data. The manufacturer does not recommend predicting a specific breath alcohol concentration from an Alco-Sensor III with Quick Draw result; these data support that advice.

Graph 6 Lifeloc FC10Plus

The FC10Plus is a preliminary breath-testing device (PBT) with passive sampling capability. Results are displayed in a three decimal place numerical readout. The FC10Plus has not been evaluated in Wisconsin for use as a PBT so performance information in that mode is unavailable. Graph 6 illustrates the linear relationship between the EC/IR results and this PASD. A linear regression equation showing perfect agreement between two data sets is: $y = 1.00x + 0.0$. The linear regression analysis of this data indicates that the FC10Plus predicts approximately seventy percent of a known breath alcohol concentration, while the correlation coefficient (r^2) indicates a weak relationship between the two sets of data. The manufacturer does not recommend predicting a specific breath alcohol concentration from an FC10Plus result; these data support that advice. According to a personal communication with Lifeloc's Mr. Alan Castrodale, future

versions of the FC10Plus will adopt a “Pass/”Fail” mode of reporting, rather than the numerical readout used on the tested unit.

Graphs 1-6 illustrate that PASD’ quantitative abilities, that is, the ability to correctly predict a person’s actual breath alcohol concentration, are poor.

Graph 7 Actively Drinking Subjects
Additional testing on actively drinking subjects showed that five out of six of the PASD detected the presence of alcohol in eighty percent or more of the subjects tested. The sixth PASD, the Alcotest 7410 detected forty five percent of drinking subjects. Measurement of the subjects’ actual breath alcohol concentrations was not possible in this part of the study due to the probability of mouth alcohol in the subjects, and no data was collected on alcohol-free subjects with only mouth alcohol. These data suggest that the presence of mouth alcohol in drinking subjects increases the ability of the PASD to detect any alcohol, regardless of source.

PASD detect alcohol more readily on persons who have recently been drinking.

C) Open Container Testing
Graph 8 Detection of Alcoholic Beverages
Four of the six PASD detected alcohol in more than eighty percent of the drinks that contained alcohol. The other two PASD detected alcohol in less than half the beverages containing alcohol.

PASD vary widely in their ability to detect alcohol in beverages.

Discussion

This study was designed to survey the overall performance of PASD currently on the market in the United States and not to substitute for a more rigorous evaluation that would be conducted before consideration of approval by the Chemical Test Section.

The studies described here were carried out under controlled laboratory conditions, with drinking subjects who were fully cooperative, and by competent PASD operators that were well trained and monitored. Performance of the PASD diminished from the laboratory to the more realistic controlled dosing studies. Reasons for this reduction in performance are not completely clear, but likely include individual variations in the amount and force of air expelled by subjects while talking, breathing, or blowing at the devices. While this variable was not objectively measured, operators’ observations confirm this. Care must be taken in extrapolating these findings to an even less optimal field environment where controlled conditions including training of operators, controlled environmental conditions, cooperative subjects, and the periodic monitoring of device accuracy may not exist.

Table 4 provides a PASD performance summary. PASD are *qualitative* screening devices designed to give a yes/no response to the question of whether alcohol is present on or about a person in question. This distinguishes PASD from PBTs and evidential breath testers that are both capable of providing very

precise and accurate *quantitative* breath alcohol results. Data in this study confirm that the ability of PASD to measure a coexisting breath alcohol concentration is poor. In addition, due to the nature of the PASD sampling mechanisms, the source of any alcohol detected cannot be known with complete certainty. With these limitations in mind, it would be unrealistic to expect any PASD to detect alcohol in one hundred percent of the drinking individuals. The benchmark of eighty percent chosen for this table represents a compromise between a theoretically perfect tool (100% correct) and one that is no better than chance (50% correct). Three PASD performed at 80% percent or better on every measure. These devices include the Intoximeter AlcoSensor III with Quick Draw, the Lifeloc FC10Plus, and the CMI AlcoBlow.

Both breath alcohol simulator and human subject testing included sampling at distances outside the manufacturers recommendations based on the presumption that field conditions may necessitate use outside ideal distances and that operators may err in estimating distances. These data suggest that strict training and adherence to appropriate operational distances will improve PASD performance.

The data collected on actively drinking subjects must be interpreted in light of the fact that five out of six of the PASD manufacturers recommend potential subjects observe a fifteen-minute deprivation period before being tested with a PASD. While the presence of mouth alcohol increases the detection capability of the PASD, the data suggest that if the observation period is not observed, the PASD may detect mouth alcohol instead of alcohol that has been absorbed into the body and given off in the breath. Additional study of alcohol-free subjects with only mouth alcohol would be necessary to further understand the effect of this observation.

Published studies exist on the ethanol content of soft drinks and other beverages the average person would not expect to contain alcohol. These studies have shown trace amounts of alcohol in 'non-alcoholic' beverages. This study included open container testing on a limited number of 'non-alcoholic' beverages; positive tests were obtained on Sprite, Pepsi, Mountain Dew, Coca-Cola, Diet Coke with Lemon, and orange juice. Although limited in scope, these results, along with the previously published data, strongly suggest that individuals relying on a PASD to detect suspected alcoholic beverages be made aware of these findings. In addition, further testing of 'non-alcoholic' beverages is recommended prior to selecting a PASD for open container testing.

Observations on individual PASD

Three PASD exhibited noteworthy behavior within the study period.

1) PASIII Flashlight

   The PASIII Flashlight was more easily overloaded than other PASD in all phases of the testing. This overloading necessitated delays of up to ten minutes while ethanol was cleared from the fuel cell and the device was ready for subsequent tests.

2) Lifeloc FC10Plus

The Lifeloc FC10Plus exhibited one aberrant result when performing open container testing. When the device was placed five inches from a 250 milliliter bottle of Captain Morgan's Rum, the unit charted a maximum reading on its display but returned a reading of 0.000 BAC. This erroneous result was not replicated.

3) CMI AlcoBlow

The CMI AlcoBlow required replacement of batteries on July 10, 2002. Performance of the unit was not affected.

PASD are simple analytical devices designed for use by non-technically trained individuals. The devices are easy to master, as they require only one or two buttons to operate, have simple displays, and according to their manufacturers, require little routine maintenance. They are, however, analytical devices that must be operated strictly according to manufacturers recommendations for best performance. Likewise, they require regular quality control checks, periodic calibration, and occasional replacement of batteries and fuel cells. Furthermore, routine performance monitoring demands additional expertise and equipment or the funds to purchase this service.

Finally, it should be noted that PBTs currently approved for use in Wisconsin have the capability to function in a passive or 'manual' mode. This feature is being utilized in very limited numbers of law enforcement situations where an active PBT test is impractical.

Conclusion

The results of this study indicate the need for caution when considering whether to employ a PASD in law enforcement situations. Performance of PASD varies and even under laboratory conditions they did not approach the dependability expected of breath alcohol testing devices already approved for use in Wisconsin. Persons considering use of a PASD need to be aware of the limitations of PASD and be prepared to conduct additional evaluations to clearly define the field situations in which they are reliable.

Acknowledgments

The author wishes to thank the following persons for their invaluable assistance with this study: Mss. Jan Grebel, Susan Hackworthy, Melissa Kimball, Tara Scribbins, and Messrs. Patrick Harding and Eugene Tremelling.

PASD Features
WIDOT Chemical Test Section - 2002

Manufacturer	CMI	Alcohol Countermeasures Systems	Draeger Safety, Inc.	Lifeloc	PAS Systems International	Intoximeters, Inc
Model	AlcoBlow	Alcoscan	Alcotest 7410	FC10Plus	PAS III Flashlight	Alco-Sensor III with Quick Draw
Web Address	www.alcoholtest.com	www.acs-corp.com	www.draeger-breathalyzer.com	www.lifeloc.com	www.pasintl.com	www.intox.com
Detector	Fuel Cell	Fuel Cell	Heated Fuel Cell	Fuel Cell	Heated Fuel Cell	Fuel Cell
Sampling Mechanism	Pump	Pump	Pump	Pump	Pump	Fan
Size-Inches	10.5 x 1.9	11.8 x 2.0	9.0 x 2.8 x 1.3	5 x 2.5 x 1.25	13.9 x 1.5-2.2	6.25 x 3.25 x 1.5
Weight-Ounces	10.5	13	17.6	8	32	8
Battery Type	4 "AA"	Rechargeable NIMH	3 "C"	4 "AA"	Rechargeable NiCad Vehicle & AC adapters incl.	9 volt for ASIII, 2 "AAA for QD
Battery Life/# of Tests	2500	>500	500	162 hours / up to 8000 tests	100 hrs w/o flashlight use	300 - ASIII, 2000 - QD
Operating Temp-Fahrenheit	23-104	20-105	23-104	32-104	0-104	32-104
Deprivation Period	No Recommendation	3 min Smoking, 15 min Drinking	15 min Drinking	15 minutes Drinking	Smoking, 15 min Drinking	Smoking, 15 min Drinking
Readout	Zero, Low, High	Green, Yellow, Red	P or F	Numerical	Bar Graph	Numerical
Readout Interpretation	Zero=green= 0.010 %, Low=Amber=0.010 - 0.020 %, High= Red=>0.020 %	Green=Zero=0.00-0.019%, Yellow=Low= 0.020-0.049%, Red=High>0.049%	P= Pass, F=Fail	Any positive number displayed indicates the presence of alcohol.* (personal communication with A. Castrodale)	1 green=0.01%, +1 green=0.02%, + 1 yellow=0.03%, +1 yellow=0.04%, + 1yellow =0.05%, +1 yellow=0.06%, +1 red=0 .08%, +1 red=0.10%, + 1 red=0.12 %*	Any positive number displayed indicates the presence of alcohol.
Analysis Time	3-5 sec	"Immediate"	5 sec	< 10 sec	5-10 sec	10 sec
Reset Time after Zero Test	2 sec	< 30 sec	5-7 sec	Immediate	Immediate	3 sec
Reset Time after Positive Test	<20 sec@ >0.200%	< 60 sec@ >0.100%	Concentration dependent	within 30 sec	30 sec - 2 minutes	15 sec- 2 minutes
Calibration Frequency	None recommended	9-12 months	Once/year	Once/year	As Accuracy Checks Indicate	As Accuracy Check Indicates
User Calibration	No	Yes	After training/certification	Yes	Yes	Yes
Accuracy Checks	"Periodic"	Per agency 'policy'	Per "agency guidelines"	Per agency policy	Every six months	Weekly/monthly
Open Container Tests	Yes	Yes	Yes	Yes	Yes	Yes
Warranty	1 yr parts/labor	1 yr materials, workmanship	1 yr parts/labor	1 yr parts/labor	1 yr materials, workmanship	1 yr materials, workmanship
Other Modes	Active	Active	Active and Manual	Auto and Manual	None	Active and Manual
Recommended Testing Distance	1"	4-6"	No recommendation	4"	Less than 10" 5-7" optimal	4 "
Subject Instructions	Breathe out or talk	Exhale steadily	No recommendation	Blow constant breath	Blow or talk at unit	Blow towards unit
PBT Capability	No	No	No	Yes	No	Yes
$$/unit - volume discounts may Other Alcohol Detection	$275	$495	$425	$580	$615	$500 complete
Products Available P =PBT, I=IID, E=Evidential, D=Personal/Disposable	P, E	P, I, E, D	P, I, E, D	P, I, E, D	D	P, E
Data collected from manufacturers' literature, web sites and personal communications				* Future units will report in a Pass/Fail format.	* Calibration can be adjusted to increase sensitivity of unit	

Table 1
PASD Detection of Simulated Breath Alcohol at Five Distances

Device	1 inch	4 inches	6 inches	12 inches	18 inches
QuickDraw	100.0%	100.0%	*100.0%*	*80.0%*	*60.0%*
Alcoscan	100.0%	100.0%	100.0%	*60.0%*	*20.0%*
FC10Plus	100.0%	100.0%	*100.0%*	*80.0%*	*100.0%*
AlcoBlow	100.0%	*100.0%*	*100.0%*	*100.0%*	*80.0%*
Alcotest	100.0%	100.0%	100.0%	80.0%	60.0%
PAS III	*83.3%*	*100.0%*	100.0%	*83.3%*	*100.0%*

Shaded area denotes outside of manufacturers' recommendations for use.

Table 2
PASD Detection of Six Simulated Breath Alcohol Concentrations

Device	0.00	0.02	0.04	0.08	0.10	0.20
QuickDraw	100%	60%	80%	100%	100%	100%
Alcoscan	100%	60%	60%	80%	80%	100%
FC10Plus	100%	80%	100%	100%	100%	100%
AlcoBlow	100%	80%	100%	100%	100%	100%
Alcotest	100%	60%	80%	100%	100%	100%
PAS III	*40%*	100%	100%	100%	100%	100%

Shaded area denotes solution containing no ethanol identified as alcohol.

Table 3

PASD vs Intoximeter EC/IR with Drinking Subjects

Device	1 inch	4 inches	6 inches	12 inches	**Average***	**Alcohol-free breaths****
QuickDraw	100.0%	88.9%	*82.1%*	*70.0%*	86.0%	100.0%
Alcoscan	96.6%	85.2%	71.4%	*42.9%*	79.5%	100.0%
FC10Plus	90.3%	79.4%	*71.9%*	*29.4%*	76.5%	100.0%
AlcoBlow	100.0%	*79.4%*	*21.9%*	*0.0%*	63.2%	100.0%
Alcotest	88.2%	31.3%	6.3%	6.3%	45.1%	100.0%
PAS III	*95.2%*	*90.5%*	68.2%	*18.2%*	77.9%	100.0%

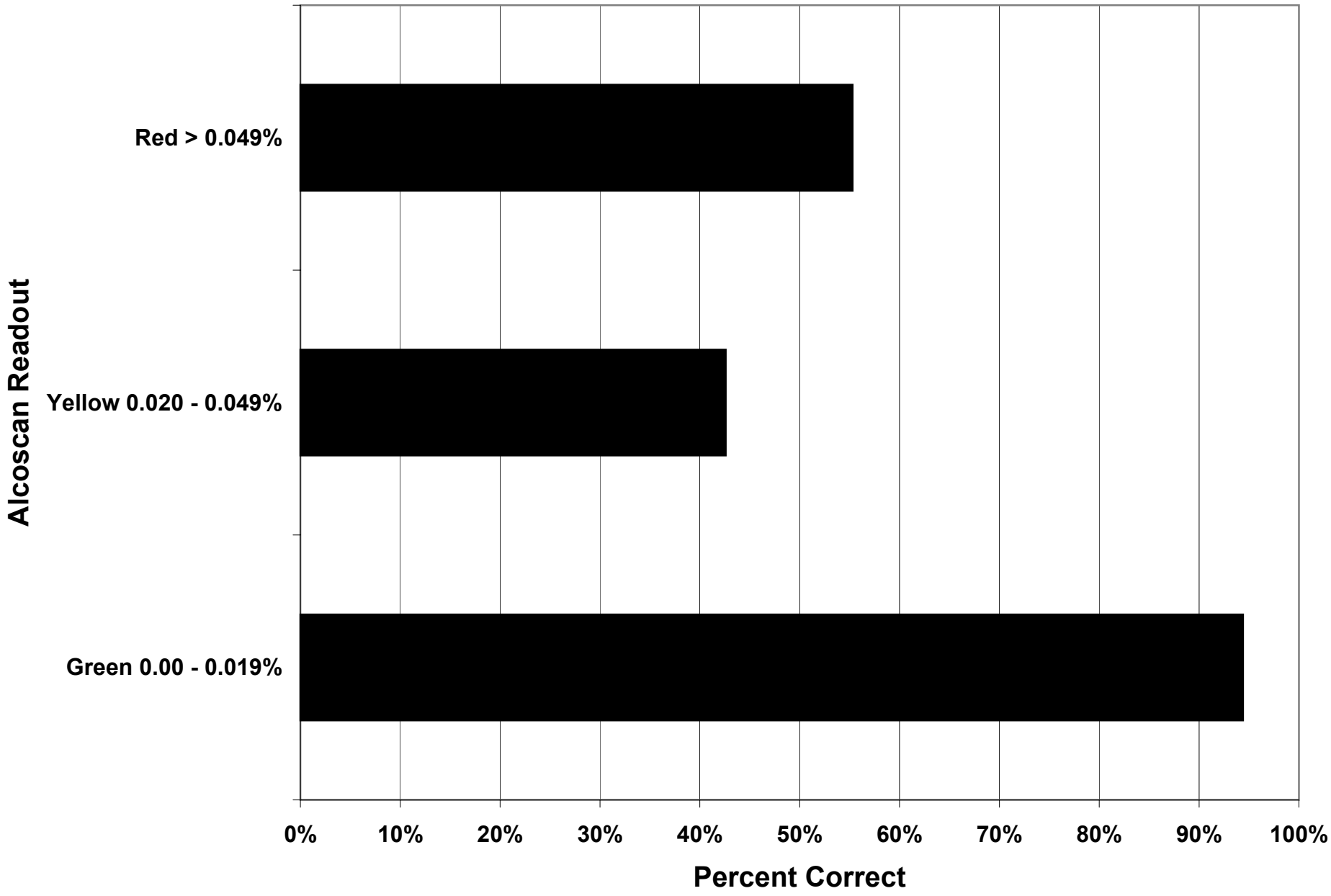
Shaded area denotes outside of manufacturers' recommendations for use.

* Includes alcohol-free breaths

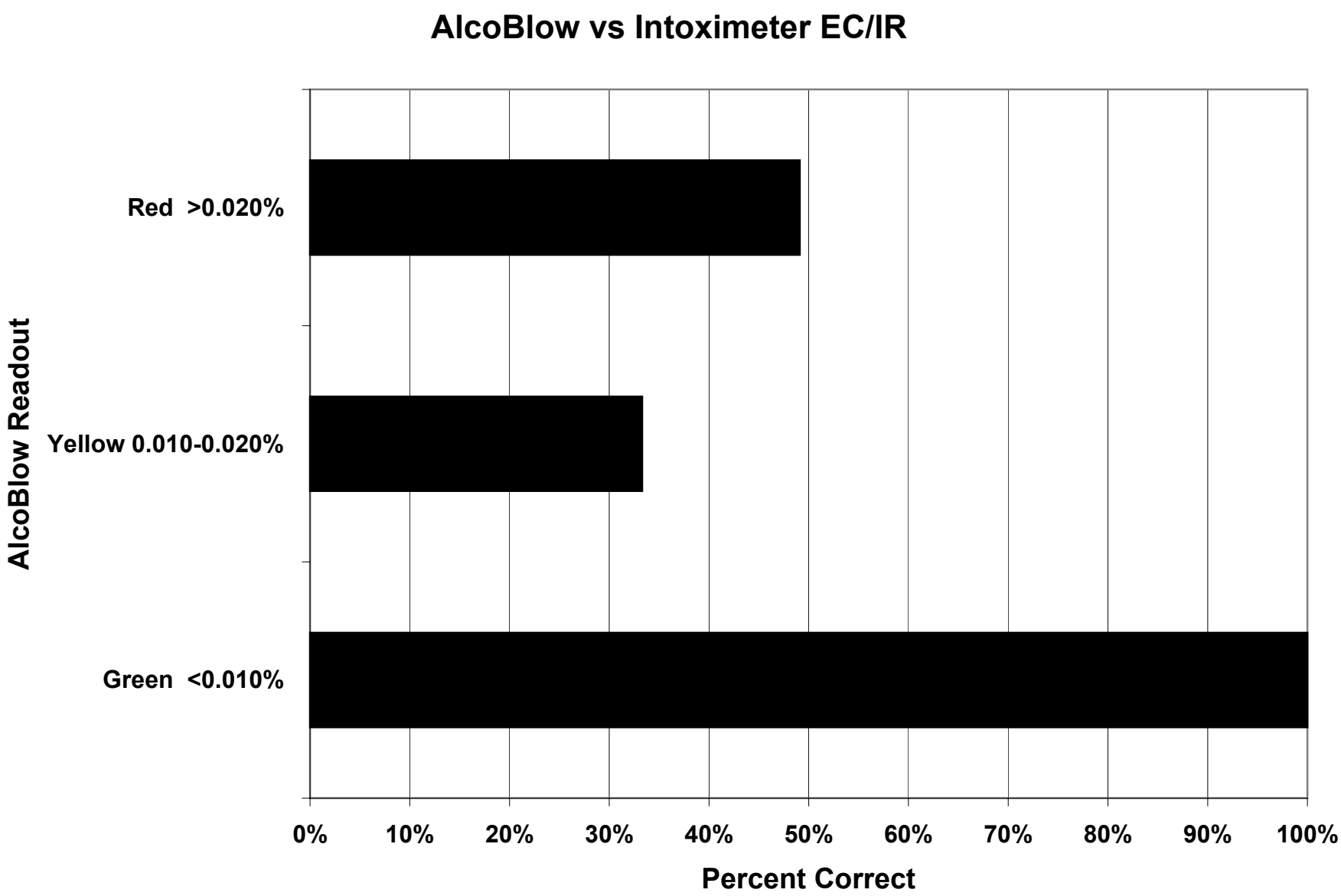
**At manufacturer's recommended distance

Graph 1

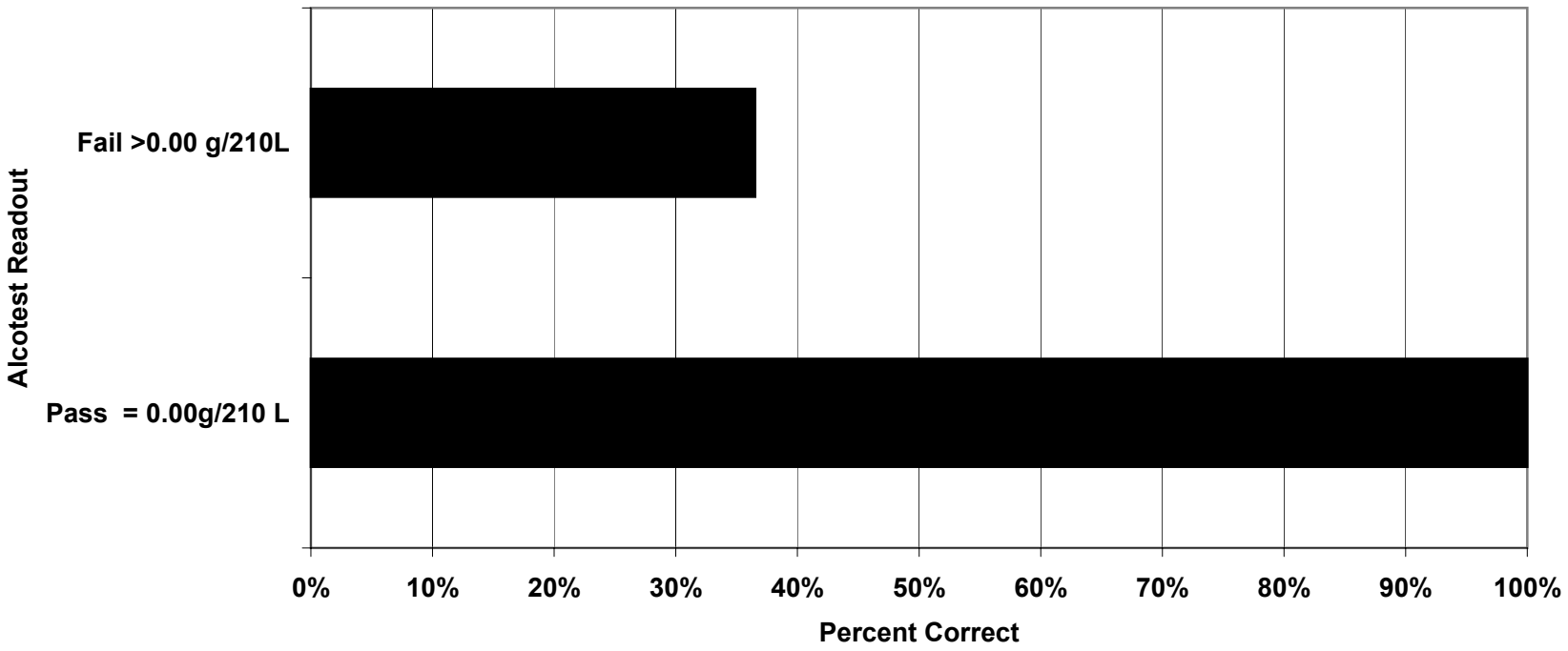
Alcoscan vs Intoximeter EC/IR

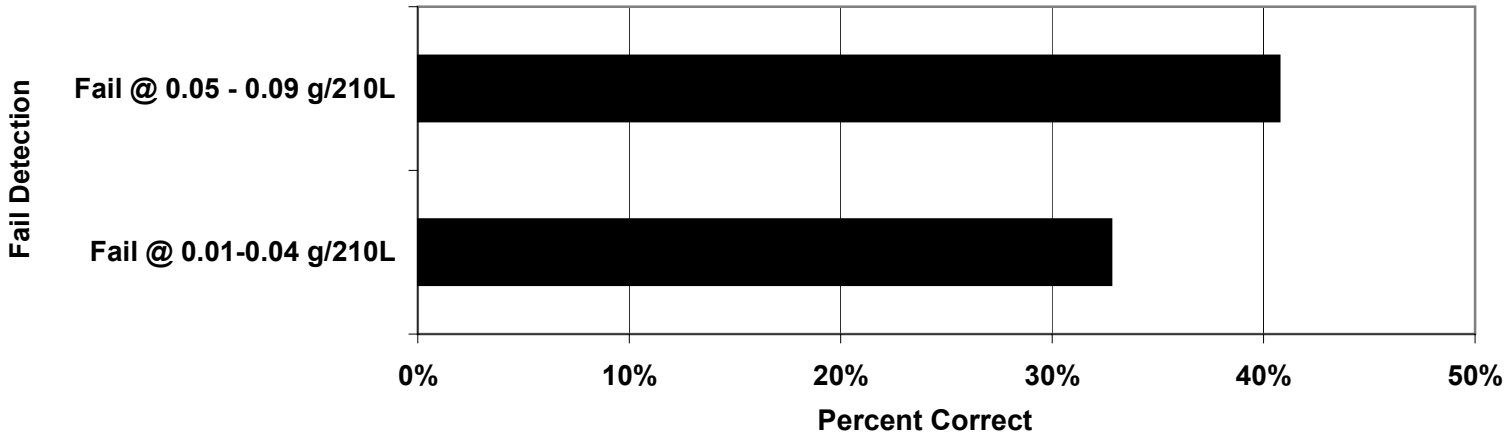


Graph 2


AlcoBlow vs Intoximeter EC/IR
AlcoBlow Readout
Red >0.020%
Yellow 0.010-0.020%
Green <0.010%
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Correct

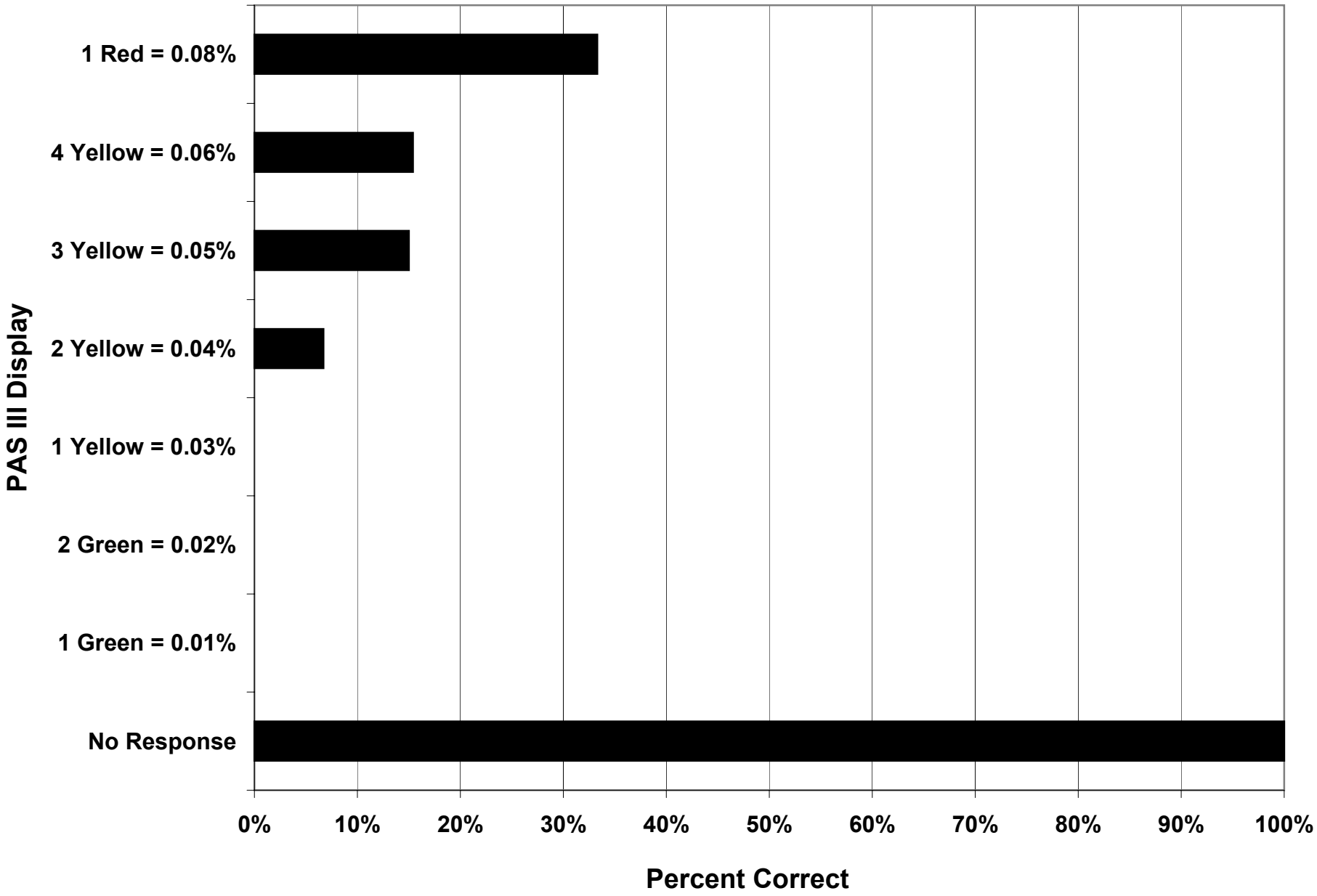
Graph 3
Alcotest vs Intoximeter EC/IR





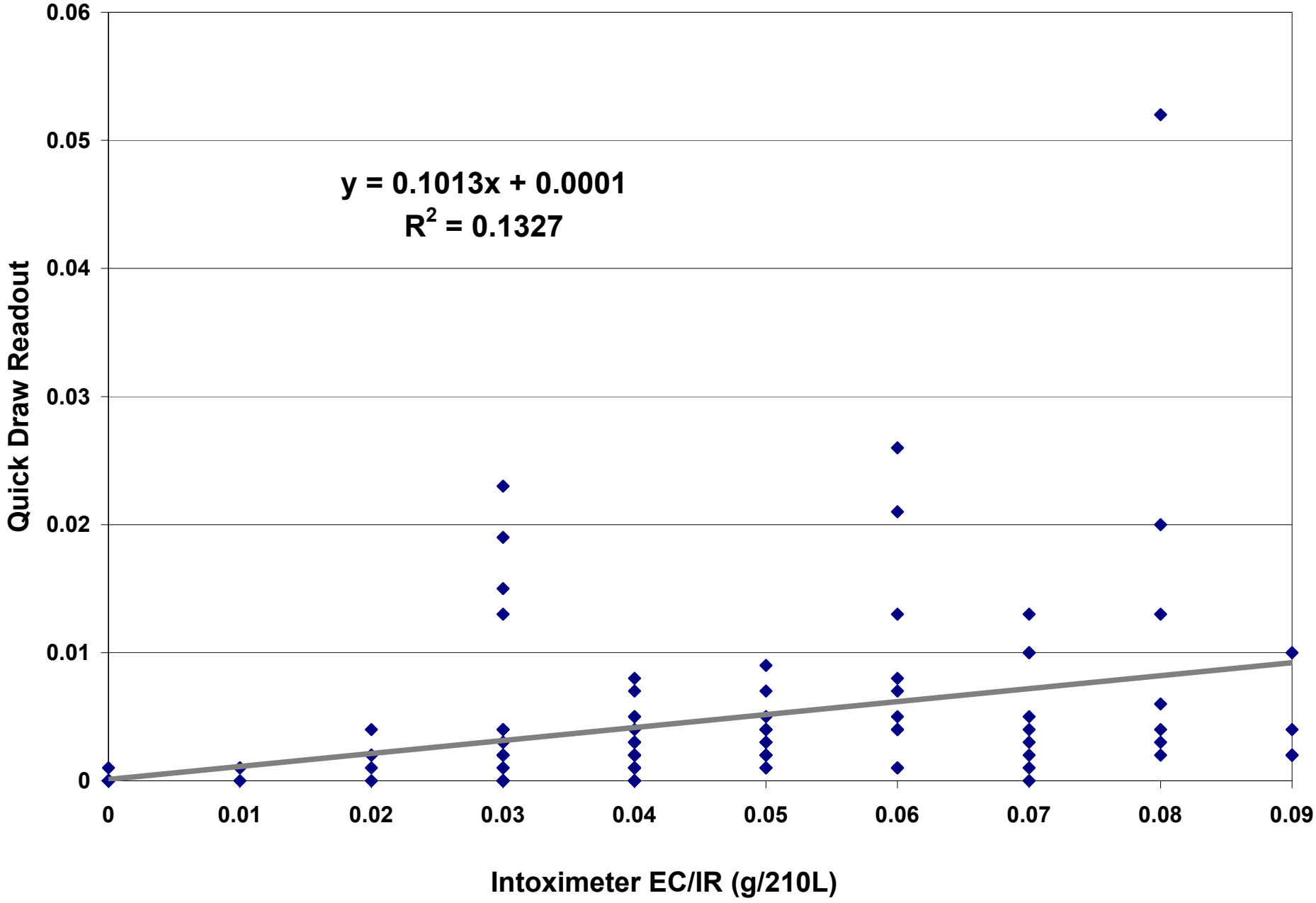
Graph 4

PAS III Flashlight vs Intoximeter EC/IR



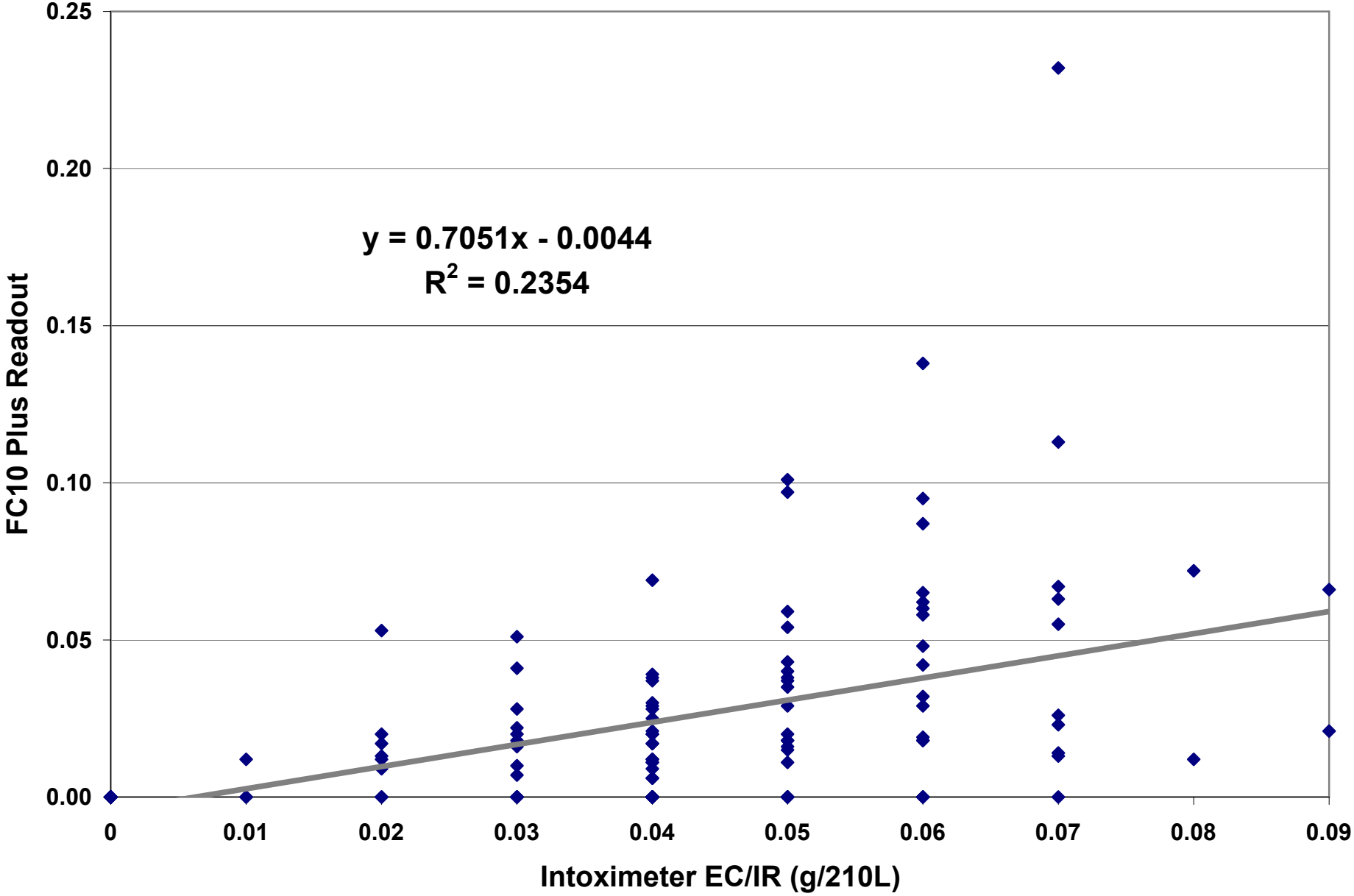
Graph 5

Alcosensor III with QuickDraw vs Intoximeter EC/IR



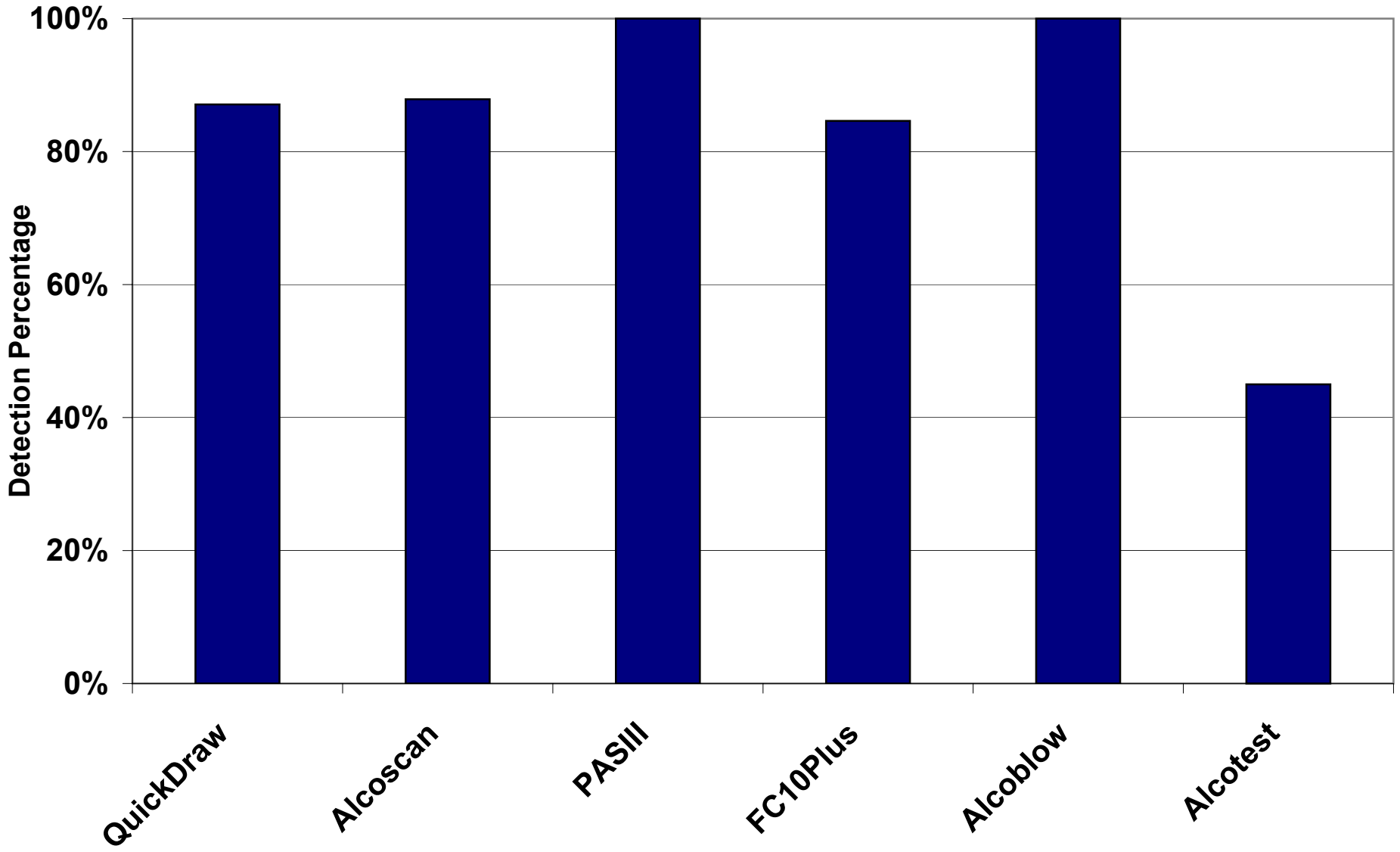
Graph 6

FC10 Plus vs Intoximeter EC/IR



Graph 7

PASD Detection of Actively Drinking Subjects



Graph 8

PASD Detection of Alcoholic Beverages

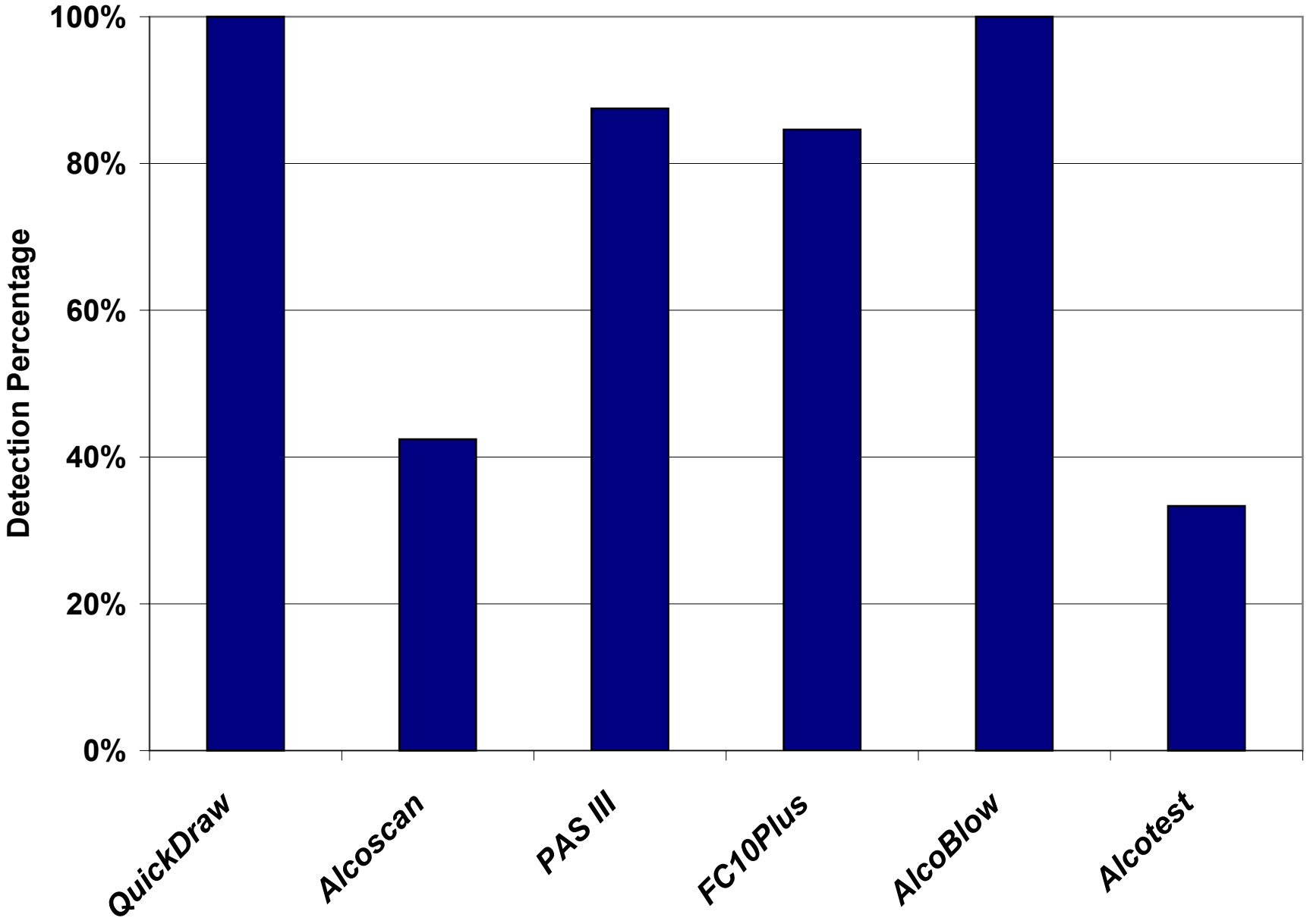


Table 4

PASD 80 % Performance Summary

Device	Lab Simulation at 1-12 inches	Lab Simulation at 0.00 - 0.20 g/210 L	Human Subjects	Active Drinking	Open Container	*Grand Score*
Alcosensor III with QuickDraw	**Y**	**N**	**Y**	**Y**	**Y**	***80%***
Alcoscan	**N**	**N**	**N**	**Y**	**N**	***20%***
FC10Plus	**Y**	**Y**	**N**	**Y**	**Y**	***80%***
AlcoBlow	**Y**	**Y**	**Y**	**Y**	**Y**	***100%***
Alcotest	**Y**	**N**	**N**	**N**	**N**	***20%***
PAS III	**Y**	**N**	**N**	**Y**	**Y**	***60%***

Appendix B: Different Examples of Passive Alcohol Sensors and Their Characteristics*

Common Features for Most Passive Alcohol Sensors

- **Portable**
- **Electrochemical sensors - fuel cell technology, similar to Preliminary Breath Tests, Intoximeter EC/IR**
- **Specific to alcohol**
- **Qualitative**
- **Sample pump or fan draws in specimen for testing**
- **Read times in seconds, negative tests nearly instantaneous**
- **Recovery time of seconds to minutes between tests**
- **Operating temperatures ~ 0 -105 degrees F**
- **Battery powered**
- **1 year warranty**

Examples from Different Manufacturers

PAS Systems International Alcohol Sensor Systems
Fredericksburg, VA
800-660-SNIF
www.sniffalcohol.com

Products: P.A.S.™ III "Sniffer", P.A.S.™ Clip Mate, P.A.S.™ Vr., P.A.S.™ Sentry

Characteristics**:**

- Flashlight, Clipboard, Handheld, and Wall mount Units
- Price Range ~ $400-600 per unit
- Rechargeable battery
- Free calibration during warranty period; recommended at 6 month interval Accuracy or 'sensitivity' check recommended monthly
- Color coded bar graph display
- No mouthpieces required

*Also includes some examples of Preliminary Breath Testing (PBT) devices. PBTs can often be modified for passive alcohol sensor sampling such as the Lifeloc FC10 Plus or the Alco-Sensor III with Quick Draw.

PAS Systems International
ALCOHOL SENSOR SYSTEMS

P.A.S.™ III "Sniffer" Flashlight

P.A.S.™ Clip Mate

P.A.S. ™ Sentry

P.A.S. ™ Vr. (PBT)

Alcohol Countermeasure Systems, Inc
Aurora, Colorado
303-366-5699
www.acs-corp.com

Product: ALCOSCAN

Characteristics**:**

- Wand-like device, resembles flashlight
- Price Range ~ $400
- Three and fifteen minute deprivation periods for smoking and drinking subjects, respectively
- LED readout indicates zero, low, and high alcohol with green, yellow, and red display.
- Relates to 'quantitative' results of <0.020, 0.020-0.049, and >0.050 g/210L respectively
- Rechargeable battery
- No mouthpieces required
- No recommendation on calibration or accuracy checks

Alcohol Countermeasure Systems, Inc.
ALCOSCAN

www.acs-corp.com

CMI, Inc.
Owensboro, KY
866-835-0690
www.alcoholtest.com

Product: AlcoBlow®

Characteristics:

- Displays 'zero', 'low', or 'high' test result on one indicator light
- Wand-like device
- Price Range ~$250 -$275
- No regular accuracy checks recommended
- Calibration yearly
- No mouthpieces required
- Alcohol free towelettes recommended to clean cone shaped sampling area

CMI INC.

MPD Companies

AlcoBlow®

Lifeloc Technologies, Inc
Wheat Ridge, CO
800-722-4872
www.lifeloc.com

Product: FC 10 Plus

Characteristics:

- Modified PBT unit
- Adapts for passive sampling
- Price Range ~ $580
- Mouthpiece required, can be reused in passive mode
- Provides 'quantitative' estimate
- Calibration services available, wet or dry, recommended yearly
- Accuracy check recommended every 30 days
- Monthly use recommended to assure maintenance of function

FC 10 Plus

Intoximeters,Inc.
St. Louis, MO
800-451-8639
www.intox.com

Product: Quick Draw adapter for Alco-Sensor or Alco-Sensor III

Characteristics:

- Modified PBT Unit - Adaptor for Alco-Sensor PBT makes sampling passive
- Price Range ~ $500 – $600 (complete unit)
- Provides 'quantitative' estimate - any positive 'quantitative' result is evidence of presence of alcohol
- Calibration Service available
- No accuracy check recommendations on Website
- Quick Draw can be removed for direct confirmatory test of positive subject – mouthpiece required
- Recovery time for subsequent tests can take minutes

Intoximeters INCORPORATED

Quick Draw adapter for Alco-Sensor or Alco-Sensor III

Draeger Safety Inc., Breathalyzer Division
Durango, CO 81303-7911
970-385-5522
www.draeger-breathalyzer.com

Product: Alcotest 7410

Characteristics:

- Looks like a PBT
- 'Pass' / 'Fail' readout
- Price ~ $425
- No recommendations for operating distances or subject instructions
- Calibration recommended once a year
- Accuracy checks per 'agency guidelines'
- No mouthpieces required in passive mode

Alcotest 7410

Appendix C: Results from the Law Enforcement Focus Group Session and the Legal Focus Group Session in September, 2002

Law Enforcement Focus Group
September 4, 2002
State Patrol District 4 Headquarters
Fond du Lac, Wisconsin

THEMES, ISSUES, OPINIONS AND PERCEPTIONS

The following narrative summarizes the themes, issues, opinions and perceptions of the Law Enforcement Focus Group session conducted on September 4, 2002. This discussion focused on the use of passive alcohol sensor devices in traffic enforcement. Members of the focus group were selected on the basis of their prior use or knowledge and/or interest in possible uses of the devices, or as a representative of varying types of Wisconsin law enforcement agencies. All participants were asked a series of questions pertaining to the concept of the devices, their accuracy, effectiveness in combating OWI violations, and their practicality for law enforcement use, as well as legal questions pertaining to their use. The survey questions and a list of the participants can be found following these statements.

It is important to stress that no attempt was made to achieve a consensus on the questions or to "take a vote" to determine majority opinion. The responses listed below represent the observations, experiences, and opinions of the participants.

NOTE: Four of the nine law enforcement agencies represented at the focus session indicated that they either are currently using, or have used a passive alcohol sensor in the past.

Appropriate / Inappropriate Uses of Passive Alcohol Sensors

- *Just one of many tools available in the law enforcement "tool box."*
- *Officer still is obligated to perform all duties and procedures related to an OWI traffic stop regardless of use of the device.*
- *Does not replace the law enforcement officer's own capabilities.*
- *The officer's own senses or professional abilities to detect alcohol are an important element of OWI enforcement.*
- *Good law enforcement practices include use of tools such as field sobriety testing.*

- *Devices would probably be used on an infrequent basis; the officer's own senses are usually sufficient for reasonable suspicion and probable cause.*

- *Devices are considered only as an "extension of the officer's nose."*

- *Used not as the primary method to determine alcohol use, but as a tool to assist in confirming officer's suspicions.*

- *Cannot be used to determine if violator is impaired.*

- *A simple detection of alcohol does not measure impairment; further testing by field sobriety procedures and officer observations is required.*

- *Deterrent for driving after drinking or driving while impaired.*

- *Used as an informational and educational/prevention tool for the public;*

  Used as part of a media campaign to prevent OWI.

  Suggested that use of passive alcohol sensors in Milwaukee helped to reduce the number of alcohol-related crashes in the early 1990's.

  Use of the devices are passed throughout a community by "word of mouth" indicating that any flashlight may be a passive alcohol sensor.

  Good public reminder of local traffic enforcement and OWI efforts.

- *Assistance in crash investigations*

  Useful tool when officer is unable to use other devices (e.g. preliminary breath tester – PBT) on a crash victim due to person's injuries.

  Detection of alcohol from a "safe distance" from an injured and possibly dangerous individual (e.g. avoid bodily fluids).

- *Determine alcohol when other odors are present that mask the odor of alcohol – PADS may be useful when other odors, such as body odors (e.g. uncleanliness, medical condition), prohibit the officer from being able to smell alcohol on the violator.*

- *Enforcement of absolute sobriety laws.*

  Determination of any alcohol use for teens/underage persons, commercial drivers, and repeat offenders.

Not currently authorized for use by State Patrol personnel when stopping commercial drivers

- *Adherence to "good law enforcement practices."*

  Technology should not be allowed to determine how and under what circumstances a passive alcohol sensor is used.

  Good law enforcement practices involve proper training, polices and procedures, and good public relations.

Effectiveness of Passive Alcohol Sensors

- *Not necessarily as cost effective as other tools, but agencies should be permitted "to keep their options open."*

  Not as cost effective as Intoximeters (or other quantitative breath test instruments) or PBT's (portable breath testers).

  Do not *ban* the use of passive alcohol sensors.

  There are some instances when the devices may be useful.

  Decision of "cost effectiveness" should be left up to each individual law enforcement agency and community.

  Not economical to have a device in every vehicle or for every officer.

- *Effectiveness depends upon the individual community and law enforcement agency using the device; agencies have different enforcement environments*

- *Passive alcohol sensors can provide a "perception of enforcement," such a officer uniforms and marked law enforcement vehicles which indicate to the general public that there is a "police presence."*

- *Passive alcohol sensors are not as well accepted as other more traditional and technologically advanced tools used by law enforcement (e.g. drug sniffing dogs, thermal imaging devices).*

- *Passive alcohol sensors are not as intrusive as other tools such as Intoximeters and PBT's that require actual contact with the device.*

- *May use the device on a second approach to the vehicle to confirm personal suspicion.*

Reliability of Passive Alcohol Sensors

- *Mixed responses regarding the reliability/accuracy of the devices currently used by law enforcement.*

  Some agencies state the devices are "good" or useful.

  Some agencies stated that they no longer used the devices due to inaccurate readings.

  Officers using the device have outperformed officers without the device "on a 2-1 basis."

  Uncertainty if the readings displayed by the devices were accurate.

  Problems with using the devices incorrectly, such as after using a cleansing alcohol-based hand gel which can result in false readings.

  Use of devices discontinued because they did not add any "value" to the traffic stop.

- ***Problems caused by the environment when using the devices can affect accuracy.*** Snowmobile OWI enforcement (i.e. Department of Natural Resources officers) creates additional problems related to excessive wind and cold and violators' helmets which restrict the ambient alcohol. Boat OWI enforcement is hampered by wind and gasoline fumes that can affect accurate readings. Wind creates problems with ambient air for many highway OWI stops.

- ***More technical information and documentation of the devices are required to make determination of the accuracy of the devices.*** Results of more testing is required before law enforcement agencies would endorse use of the device.

Practicality of the use of Passive Alcohol Sensors

- *Readings are not often accurate so they are not practical to use.*

- *Officer may need two flashlights if one is used as a passive alcohol sensor and one is used as an actual flashlight; low light displayed from passive alcohol sensor/flashlight.*

- *Another tool to carry on officer's belt.*

- *Officers want to focus on violator's behavior, not the reading of a passive alcohol sensor.*

- *Officer safety limitations – devices that may be used close to the violator's face may be grabbed by the violator and used as a weapon against the officer or other persons.*

- *Flashlights are not routinely used in daylight, creating confusion for the violator if the passive alcohol sensor/flashlight is used during a daytime stop.*

- *As a result of publicity, some drivers may not roll down their windows at a traffic stop for fear of the passive alcohol sensor use.*

- *Carrying a passive alcohol sensor/clipboard may be cumbersome at traffic stops.*

- *Training on use is vital.*

- *May be too costly when considered during times of budget constraints and need for other tools.*

Legal Concerns and Privacy Issues

- *4th Amendment and Plain View doctrine.*

  Law enforcement should "have no problem" using the devices as long as they are used within the legal rules of probable cause and reasonable suspicion.

  The devices are considered "an extension of the officer's own senses" similar to the use of binoculars.

  Officers must receive proper training on using the device within the limits of the law.

  Public must understand the need for the devices as a tool for OWI enforcement.

  The devices have never been contested in court (for one law enforcement agency that uses the devices on a routine basis).

- *The readings from a passive alcohol sensor and the relationship to legal evidence.*

  OWI arrests are not made solely on the basis of a reading from a passive alcohol sensor.

Results from the device are not admissible in court but are used as one indicator of alcohol use.

Nature of the evidence does not change when a device is used; alcohol that is present may be sensed, but it is not changed.

- *Concern with "covert" nature of passive alcohol sensors.*

  Parents view use of the devices on juveniles to be "sneaky."

  Important to deal with the public on a professional level, and the use of the devices may compromise that standard..

  Covert nature of the passive alcohol sensor may betray public trust in law enforcement.

  Deceptive tactics create problems over time and result in poor public relations.

  Law enforcement use is not "sneaky" if officer informs violator of the device. Beforehand.

  Law enforcement should adopt policies of informing the violator when the device is to be used.

  Not all the devices are covert, or disguised as another device or tool; some are obvious to the violator as a tool used by the officer.

Probable cause and the Wisconsin Legislature

- *Passive alcohol sensors are effective only if probable cause exists.*

- *Training on the proper use of and when to use the devices is paramount for law enforcement agencies.*

- *Wisconsin legislature is interested in when the devices would be used.*

- *Legislature will likely have fewer issues if it is clearly indicated that the devices are used only after probably cause has been identified.*

- *Legislature may ban devices if they believe law enforcement will use them in a deceptive manner.*

- *Legislature must be better informed as to how and devices actually work and when they would be used during the entire procedure of an OWI traffic stop.*

Trial Use and Guidelines

- *State legislature should consider requiring a trial phase for use of the devices involving a selected number of law enforcement agencies and requiring the collection of data on the use and accuracy of the devices.*

- *Guidelines and training should be developed for all law enforcement agencies on the proper use of devices.*

- *Banning the use of the devices "altogether" would not permit technology the chance to prove their usefulness or to improve the devices*

Marketing Passive Alcohol Sensors in Wisconsin

- *There is often a big "sales push" by vendors to sell the devices on a trial or "rent to own" basis; some law enforcement agencies do not succumb to the pressure.*

- *Use of the devices in another state makes it easier to sell the devices in Wisconsin.*

- *The courts in some areas have been supportive of advances in technology as long as the officers are "up front" informing citizens of their use.*

- *Officers must be trained on using the devices, including their legal responsibilities, not only encouraged to purchase them.*

Other Law Enforcement Concerns

- *Training to ensure correct us of the devices is essential.*

- *Legal requirements including the plain view doctrine, probable cause, and overall OWI stop procedures.*

- *Training maintains professional standards.*

- *Modifications to the existing devices may make them more useful to law enforcement.*

- *Provide larger buttons to facilitate use when an officer is wearing gloves.*

- *Mounting bracket in law enforcement vehicle for easier storing when device is not in use.*

- *More efficient re-charging device (instead of batteries).*

- *More options for "overt" devices (not designed to look like flashlights or clipboards)*

Final Comments

- *Would not use devices generally, though they may be useful in some circumstances.*
- *Concern with deception of "covert" devices.*
- *Need to educate legislature on the devices and their use.*
- *Total endorsement as a tool to reduce OWI.*
- *Officers must have adequate training and guidelines.*
- *Community must dictate use of the devices.*
- *Devices should be available to those who want to use them, in whatever capacity.*
- *Some modifications to current devices are necessary.*
- *More information is needed on the devices to make any decisions.*
- *Opposition to blanket ban of the devices in Wisconsin Department of Transportation*

LAW ENFORCEMENT FOCUS GROUP
List of Participants

Wednesday, September 4, 2002
12:30pm – 2:30pm
Wisconsin State Patrol District 3 HQ
Fond Du Lac

1) Chief Doug Pettit, Oregon P.D.

2) Sgt. Pattie Pautz, State Patrol District 4, Wausau

3) Warden Karl Brooks, DNR, Madison

4) Sgt. Larry Peronne, Manitowoc P.D.

5) Officer Scott Neimi, Elkhart Lake P.D.

6) Sgt. Gordon Disch, Dane Co. S.O.

7) Capt. Ken Berg, Eau Claire Co. S.O.

8) Officer Stewart Ballweg, UW-Madison P.D.

9) Asst. Chief Noble Wray, Madison P.D.

10) Mr. Terry Witkowski, Blue Sky Consulting, Milwaukee

Moderators: John Nordbo/Janet Hauke (WisDOT-OODS)

Observers: Loralee Brumund (WisDOT – DSP), Susan Hackworthy (WisDOT-DSP) and Tim McClain (WisDOT-BOTS)

PASSIVE ALCOHOL SENSORS - Questions for Law Enforcement Community

1. What are some appropriate uses of passive alcohol sensors for traffic enforcement (e.g., OWI enforcement, open intoxicants in motor vehicles, commercial motor vehicle drivers)?

2. What would be considered *inappropriate* use of these devices?

3. When used during a traffic stop, how accurate are passive alcohol sensors? In other words, how well does the device provide an accurate indicator that the driver has alcohol on her/his breath?

4. (I realize that some of you have used one of these devices and others have not, but for those who have), how effective are passive alcohol sensors compared with other tools or techniques used by law enforcement officers in determining a possible OWI violation?

Law enforcement officers currently use preliminary breath test devices (PBTs) which require a subject to blow into a mouthpiece to test for the presence of alcohol, and the subject is aware that the officer is requesting a breath sample for testing. In comparison, not all passive alcohol sensors are so obvious and may not be readily identifiable by the subject as a breath test device.

5. What difficulties does this (or could this) create for the officer in using the passive alcohol sensor?

6. What are the benefits and problems with using a passive alcohol sensor at traffic stops?
   - use at the scene of the stop
   - how the device fits on the officer's belt
   - cost of the device relative to its use (as an additional tool)?
   - use of the device relative to the training requirements for a safe traffic stop?

7. How has the marketing of passive alcohol sensors influenced your opinion of them?

8. What impact do you think passive alcohol sensors do (or could) have on the enforcement of impaired driving laws?

9. How do passive alcohol sensors compare to Preliminary Breath Test devices (PBTs) for use in detecting breath alcohol during a traffic stop?

10. Is there anything we have missed or is there anything anyone would like to add to the discussion?

11. One final question – if, when you leave this room, you were to see an old friend in the hall, and they ask you if Passive Alcohol Sensors should be used for OWI law enforcement, what would you tell them. (Yes or no)

Appendix D: Legal Focus Group, September 11, 2002
Wisconsin Department of Transportation
Hill Farms State Transportation Building
Madison, Wisconsin

THEMES, ISSUES, OPINIONS AND PERCEPTIONS

The following summarizes the themes, issues, opinions and perceptions of the Legal Focus Group session conducted on September 11, 2002. This discussion focused on the use of passive alcohol sensor devices in traffic enforcement. Members of the focus group were selected on the basis of their interest in passive alcohol sensors in relation to the legal profession or as a representative of varying legal professions in Wisconsin. All participants were asked a series of questions pertaining to legal and policy issues regarding the devices. The survey questions and a list of the participants can be found following these statements.

It is important to stress that no attempt was made to achieve a consensus on the questions or to "take a vote" to determine majority opinion. The responses listed below represent the observations, experiences, and opinions of the participants.

NOTE: Three of the nine legal professionals represented at the focus session also responded to an additional question submitted after the session concluded.

4th Amendment Concerns / Searches

- *The use* of passive alcohol sensors *does not violate the 4th Amendment of the US Constitution, which protects citizens from unlawful searches.*

  Still some are concerned whether the use of the device and its technology constitutes a "search."

  Since a person's breath is offered in full view of the public, there is no expectation of privacy, thus the use of the passive alcohol sensor is not a search.

  A person's breath may be considered as "waste" and thus open applicable to government monitoring and regulation for the general welfare of the public.

- *Recent Kyllo v. US case (US Supreme Court) suggests that since the US Supreme Court ruled that thermal imaging when used at a remote location to sense an illegal marijuana growing operation was considered a search, the use of a passive alcohol sensor may also be considered a search*

  Yet the Kyllo case involved a private residence and not a vehicle that has a diminished expectation of privacy (i.e. automobile exception rule)

Upon rolling down the window of the vehicle, the driver has removed her/his expectation of privacy.

Thermal imaging is used from a remote location whereas the use of the passive alcohol sensor for an OWI traffic stop generally requires the officer to be standing next to a vehicle.

- *Probable cause is important to Wisconsin law and needs to be the primary element for an OWI traffic stop before the use of a passive alcohol sensor.*

- *Is there a "precondition" at an OWI traffic stop that must exist before a passive alcohol sensor is used?*

- *Guidelines for passive alcohol sensor use should be created for law enforcement agencies*

  The rules, preconditions and/or policies on use of the devices can guide law enforcement officers as to what circumstance and what stage of the traffic stop process the device is to be used.

  Suspect should be given reasonable notice by the law enforcement officer that the device is being used.

  Use of the device should be at the discretion of the individual officer.

Appropriate / Inappropriate Uses of Passive Alcohol Sensors

- *The opportunities for use of the device by law enforcement officers are very limited.*

- *Suggested that passive alcohol sensors would be used only 1 out of every 30 OWI traffic stops.*

- *Infrequent use of the devices will thus have little impact in terms of reducing the number of OWI convictions or no impact at all.*

- *Even the infrequent use of the devices does not invalidate their use; 1 in 30 stops is still significant for combating OWI*

- *Just one of many tools available to law enforcement. Arrests for OWI do not depend upon only one alcohol test. Other techniques are recognized by the courts as tools for law enforcement (e.g. Horizontal Gaze Nystagmus – HGN).*

- *Benefits of Passive Alcohol Sensors:*

  Most helpful in cases regarding absolute sobriety.

Assist law enforcement officers suffering a cold or other olfactory limitations.

Assist in crash investigations.

Public deterrent when used as part of a public education campaign.

Law enforcement officers already have the authority to smell alcohol, so use of passive alcohol sensor as a deterrent is "silly" public concept.

- ***Concern over potential abuses of passive alcohol sensors:***

  Device may be able to detect alcohol that had been spilled by a passenger or from an intoxicated passenger; alcohol incorrectly attributed to the driver instead of the passenger.

  If the officer cannot see, smell or hear that something is wrong at the traffic stop, why is the officer using a tool to look for something?

  Used by law enforcement as an "excuse" to stop people without probable cause simply to gain access to the motorist and further question the motorist.

  A passive alcohol sensor/flashlight thrust into a violator's face may be intimidating. Differing opinions on how far the device must be held away from the face of the violator (i.e. 3" – 10" depending upon the type of device used).

  Traffic stops can be regarded as "traumatic events" and the use of the passive alcohol sensor may make them even more traumatic.

  Making a sense "easier" (i.e. passive alcohol sensor enhances smell) is an uncomfortable thought.

- ***How do passive alcohol sensors compare to other law enforcement technologies?***

  The public already has to endure "intrusive" technology designed to protect them, such as airport x-ray machines and speed detecting radar.

  Passive alcohol sensors are only an extension of the officer's senses, similar to the use of binoculars.

  Passive alcohol sensors are really no more intrusive than other technologies.

  Public is accustomed to and even expects law enforcement to use technology at traffic stops.

Since September 11, 2001, the public is more open to increased security measures and law enforcement use of tools.

A major difference between a passive alcohol sensor and other technology is that a passive alcohol sensor is sensing alcohol, which is a *legal* substance (as long as the amount is at the legal limit) in today's society and that is where the intrusion lies. Whereas, other technology is often looking for illegal items such as bombs or drugs. That introduces the concept of absolute sobriety as the minimum BAC level for drivers.

Possible to create an atmosphere of absolute sobriety if legal alcohol is given the same status as other illegal substances.

- What happens during the traffic stop after the passive alcohol sensor is used? Will the officer require the suspect to take more tests?

- Would it be legal for the officer not to require the suspect to take more test?

- Any traffic stop constitutes an inconvenience; the passive alcohol sensor is just another inconvenience.

Policy Concerns related to Passive Alcohol Sensor Use

- *Passive alcohol sensors should not be banned from use in Wisconsin, but the decision of their use should be left up to individual law enforcement agencies and communities.*

  Banning passive alcohol sensors would not serve a constructive purpose.

  Some communities and law enforcement agencies are more aggressive in traffic enforcement and have larger budgets for technological purchases.

  Passive alcohol sensors may enable "selective enforcement" where a wealthy community could target minorities or poor residents.

- *Public may have a perception that the devices are intrusive even though they are considered constitutional.*

  The public includes not only persons who are interested in reducing alcohol-related crashes, but also persons who are interested in protecting individual privacy rights.

- *Since statistics indicate that there is a downward trend in the number of alcohol-related deaths, is the passive alcohol sensor actually addressing a problem or should that problem be better defined.*

- Officer may have to predetermine if she/he will use the passive alcohol sensor only when she/he has a cold or at every stop.

- *A better definition of the problem of OWI may be necessary to better select the appropriate tools to address the problem rather than let technology determine the correct tools.*

- *Even with a decline in the number of alcohol-related deaths, each death is important to the individual families.*

- *The decline in alcohol-related deaths is not reflective of the technology used by law enforcement, but rather reflective of new laws, fines, court cases and other tools.*

Sobriety Checkpoints Are Not Legal In Wisconsin

- *Sobriety checkpoints in other states, such as Illinois, are tolerated by the general public because of a general concern with OWI and a desire to reduce alcohol-related crashes and deaths.*

- *The political climate in Wisconsin, including citizen concern with privacy, does not permit sobriety checkpoints in Wisconsin.*

  Concerns related to OWI do not mean that the government should be given a "blank check" to invade someone's privacy.

Privacy Concerns

- *The use of passive alcohol sensors may constitute an unreasonable search because, in the broader societal context, they represent one more tool in a broad continuum of tools used by law enforcement for conducting an investigation or for doing surveillance.*

- *Possibility of creating a "slippery slope" or "big brother" effect in which privacy rights are eroded over the long term as more technology is employed to enforce laws.*

- *General public is becoming increasingly concerned about privacy and not letting the government set precedents that can take away fundamental privacy rights.*

- *Technology has advanced beyond privacy laws.*

- *Passive alcohol sensors have limited usefulness and thus limited impact on privacy.*

Has Technology Gone Too Far?

- *Examples of law enforcement technologies going "too far" are requiring photo identification with fingerprints and swabbing for DNA samples.*

- *If passive alcohol sensors are considered too intrusive, it is not worth defending them in court.*

- *There is no real problem with the use of the passive alcohol sensors since they are not permitted as evidence in court.*

- *Technology is not pervasive if it is so expensive that it cannot be purchased and used by governments*

Passive alcohol sensors and the Courts

- *Law enforcement officers may not like having to defend passive alcohol sensors in court (as they currently do with Intoximeters and radar), since it is a non-evidentiary tool; may not be a problem.*

- *Use of the passive alcohol sensor in court simply gives defense attorneys one more point to argue.*

- *Credibility of the law enforcement officers may diminish if they need to use a tool to smell alcohol.*

- *No need to use passive alcohol sensors if officer already smelled alcohol. Defend why a passive alcohol sensor was not used.*

- *For prosecutors, passive alcohol sensors may be more trouble than they are worth.*

- *May have to create legislative language to categorize passive alcohol sensors similar to PBT's.*

- *Hard to defend variances of colors of passive alcohol sensor results in court.*

Cost/Benefit of Passive Alcohol Sensors

- *Passive alcohol sensors have minimal benefit related to the cost of purchase and training.*

- *Funds should be spent on other technologies that have already been proven to be effective in combating OWI.*

- *Though constitutionally permissible, passive alcohol sensors do not represent a "silver bullet" in the enforcement of OWI laws.*

- *Just one tool among many available for law enforcement.*

Training and Public Education

- *Adequate training for law enforcement officers on how and when to use passive alcohol sensors will determine their effectiveness.*

- *Law enforcement officers still must be able to use their discretion when enforcing OWI laws.*

- *Public needs as much education related to the passive alcohol sensor as do law enforcement officers.*

Final Comments

- *Passive alcohol sensors are not needed; they do not add to officers' abilities.*
- *Money would be better spent on other tools or in other areas of law enforcement.*
- *Is the use of passive alcohol sensors important enough to defend them against concerns related to electronic intrusions?*
- *Gains with use of passive alcohol sensors are small when compared to cost*
- *Use of passive alcohol sensors must include officer training and public education*
- *Use of passive alcohol sensors should not permit law enforcement officers to become "lazy" or eliminate their use of discretion*
- *The devices are lawful and represent minimal intrusion*
- *Too much hassle, cost and questionable results to encourage implementation of passive alcohol sensors.*
- *Wisconsin's political climate is not the same as other states that use passive alcohol sensors at sobriety checkpoints.*
- *Devices should not be banned but determination of use should be left up to individual law enforcement agencies and communities.*
- *Passive alcohol sensor should not be used because they compromise personal rights.*

NOTE: Legal Focus group participants were queried via mail to address an issue not discussed during the focus group session. The issue was stated: *If the passive alcohol sensor detects alcohol near an open bottle of intoxicants in the motor vehicle, but not visible to the law enforcement officer conducting or assisting the traffic stop, does this discovery of the open bottle still fall into the "plain view" doctrine?*

- It would not be in plain view because [the officer did] not see the bottle – I assume it was found only after a search pursuant to the sensor indicating the presence of alcohol. The plain view doctrine only "kicks in" for things that are seen without any kind of manipulation or search.

- I do not believe that a concealed container can properly be deemed in plain view when it is detected with such a sensory aid.

- It is unclear …how plain view applies to the open container if the officer does not see it as set forth in the facts. If the container is found during a subsequent search as a search incident to arrest or perhaps even as consent search then there is no problem. Plain view doctrine does not apply. If the question is really what happens if an open container is subsequently located and that arguably the open container is what caused the passive alcohol sensor to alert the officer, I still don't see a problem as the officer would still have to conduct his investigation including making his own observations regarding signs of intoxication including field tests before an arrest is made…use of the passive alcohol sensor does not qualify as a search, and therefore, no constitutional questions arise.

LEGAL FOCUS GROUP

List of Participants

Wednesday, September, 11th, 2002
12:30pm - 2:30pm
Hill Farms State Office Building, Room 551
State Patrol Headquarters
Madison

1. Maureen Boyle, District Attorney, Walworth County
2. Barry Cohen, Defense Attorney, Elkhart Lake
3. Jacqueline Agee, John Marshall Law School student / PAS researcher
4. Nina Emerson, Director, Resource Center for Impaired Driving – UW Madison
5. Dave Perlman, Assistant Attorney General, Wisconsin Department of Justice
6. Dee Dee Watson, Public Defender, State Public Defender's Office
7. James Gramling, Municipal Judge, City of Milwaukee
8. Mike Vaughan, Attorney - Murphy/Desmond, Madison
9. Carol Doeppers, Privacy Consultant (formerly of the WI ACLU), Madison

Observers: Tim McClain (WisDOT-Bureau of Transportation Safety), Dennis Hughes (WisDOT-Bureau of Transportation Safety), Loralee Brumund (WisDOT-Division of State Patrol), Gene Tremelling (WisDOT-DSP/Chemical Test Section), Jane Maney (WisDOT-DSP/Chemical Test Section), Susan Hackworthy (WisDOT-DSP/Chemical Test Section), Hector Gonzalez-Velez (WisDOT- Office of General Counsel).

Guest/non-participant (invited by Mike Vaughn): Kelly McDowell (Miller Brewing Company)

Legal Focus Group Questions

Most searches of motor vehicles and drivers are made without a warrant. A warrant less search does not violate the *4th Amendment* if the search falls within an exception to the warrant requirement. Warrant less searches of motor vehicles and drivers may be authorized under a number of 4th Amendment exceptions including the automobile exception, the consent exception, the *plain view* exception, the investigatory exception, and the search incident to arrest exception.

1. Does the use of a passive alcohol sensor during the course of a valid traffic stop fall within any of these exceptions?

2. Does the use of a passive alcohol sensor during the course of a valid traffic stop—when used to identify the presence of alcohol on/around a passenger or other areas of the vehicle—fall within any of the 4th Amendment exceptions for a warrant-less search?

2A. Does that exception apply to an open intoxicant in the vehicle?

The *Sense Enhancement Doctrine* permits law enforcement officers to use their senses, or enhancement of their senses, to identify a possible violation and/or to locate an item considered to be in plain view.

3. Is the use of a passive alcohol sensor simply another tool, similar to drug sniffing dogs or x-ray machines at airports, to which the *Sense Enhancement Doctrine is* applicable?

Law enforcement officers currently have the ability to use preliminary breath test devices (PBT's), which require a subject to blow into a mouthpiece to test for the presence of alcohol. During this procedure, the subject is aware that the officer is requesting a breath sample for testing. In comparison, not all passive alcohol sensors are so obvious and may not be readily identifiable by the subject as a breath-testing device.

4. This inability to easily identify the passive alcohol sensor as a breath testing device -- Of what concern—if any—would that be to the courts?

4A. Follow-up question: Is the use of a less obvious breath testing device such as some of the passive alcohol sensors currently on the market a good practice/policy for law enforcement?

5. Of what value are passive alcohol sensors to prosecutors in the conviction of OWI violations?

5A. Could passive alcohol sensors have a significant impact in terms of arrest and prosecution?

6. Do you think passive alcohol sensors should be used for traffic enforcement in Wisconsin for OWI enforcement?

7. Is there anything we have missed or is there anything anyone would like to add to the discussion?

Appendix E: Kernats, Michael. *Inspection, Search and Seizure of Motor Vehicles and Drivers*. Wisconsin Department of Transportation, Office of General Counsel (July, 2002).

Inspection, Search and Seizure of Motor Vehicles and Drivers

DOT Assistant General Counsel Mike Kernats
Revised July 2002

The Fourth Amendment, as well as Federal and State statutes and administrative rules, limit the authority of state law enforcement officers to - stop and inspect motor vehicles and driver records. Stops and searches made pursuant to a valid warrant are u~ually trouble free. However, most stops and searches of motor vehicles are made without a warrant.

A warrantless search does not violate the Fourth Amendment if either of two general conditions are satisfied. First, no warrant is required if there is no violation of a person's reasonable expectation of privacy. Second, no warrant is required even if a person has a reasonable expectation of privacy, but the search falls within an established exception to the warrant requirement.

Warrantless searches of motor vehicles and drivers are authorized under a number of Fourth Amendment exceptions including:

The automobile exception to the Fourth Amendment,

The consent exception,

The plain view exception,

The pervasively regulated business exception.

The investigatory stop exception,

The search incident to arrest exception,

The stop and frisk exception,

The vehicle inventory exception,

All of these exceptions apply to the inspection and search of motor vehicles and drivers. Most of these exceptions are listed in Wis. Stat. section 968.10.

Automobile Exception

The automobile exception allows law enforcement officers to stop and search a vehicle if there is probable cause to believe that

the vehicle contains evidence of a crime and there are exigent circumstances making it impractical to obtain a warrant before a search. Every part of the vehicle can be searched, including the trunk and closed containers. This exception is based on 2 justifications, vehicles are mobile and drivers have a reduced expectation of privacy.

Carroll v. U.S.. 267 U.S. 132 (1925).

Chambers v. Maronev, 399 U.S. 42 (1970).

Coolidae v. New Hampshire, 403 U.S. 443 (1971).

U.S. v. Ross, 456 U.S. 798 (1982).

California v. Acevedo, 500 U.S. 565 (1991).

Whren v. U.S., 517 U.S. 806 (1996).

> **As long as police have probable cause for a traffic stop, it is irrelevant whether the police also intended to make a drug bust. Policeman's subjective intent is irrelevant, as long as there is objective evidence of probable cause for a traffic offense.**

WYomina v. Houghton, 526 U.S. 295 (1999).

> **If police have probable cause to believe that a vehicle contains evidence of a crime (drugs in this case), police may search any containers in the vehicle that may contain the object of the search, whether the container belongs to the driver or a passenger.**

Florida v. White, 526 U.S. 559 (1999).

If police have probable cause to believe that a vehicle is contraband, because it is subject to civil forfeiture under a state drug forfeiture law, the vehicle can be seized from a public place without first obtaining a warrant.

Maryland v. Dyson, 527 U.S. 465 (1999).

In a per curiam decision, the Supreme Court stated that the "automobile exception" does not require a separate finding of exigency. All that is required for a warrantless search of a motor vehicle is a finding of probable cause. "If a car is readily mobile and probable cause exists to believe it contains contraband, the Fourth Amendment...permits police to search the vehicle without more."

Consent Exception

Law enforcement officers can search a vehicle, including any closed containers in the vehicle, if the owner or driver voluntarily consents to a search. The totality of circumstances test is used in determining whether consent is voluntary.

Schneckloth v. Bustamonte, 412 U.S. 218 (1973).

Florida v. Jimeno, 500 U.S. 248 (1991).

Florida v. Bostick 501 U.S. 429 (1991).

> **In a random search of bus passengers, officers may ask for consent to search luggage. Consent is valid if a reasonable person would feel free to decline the request to search and terminate the encounter with the officer.**

Ohio v. Robinette, 519 U.S. 33 (1996).

> **4th amdmt does not require, as condition to giving voluntary consent to search by defendant who has been lawfully detained in a traffic stop, that the defendant first be informed that he is free to go. Explains Whren decision.**

U.S. v. Drayton, ___ U.S.___, 70 U.S.L.W. 4553 (June 2002)

> **In a random search of bus passengers, officers may ask for consent to search luggage. Consent is valid if a reasonable person would feel free to decline the request to search and terminate the encounter with the officer. Police officers are not required to advise persons that they can refuse to consent to a search.**

State v. Williams, __ Wis. 2d ___, 2002 WI 94 (July 2002).

> **A consent search is valid if the person who consented to the search was legally detained and was free to go. This was a vehicle search. The stop was initially justified because of a speeding violation, a warning was issued and the driver was told he was free to go before asking for consent to search. Applied U.S. v. Drayton.**

Plain View Exception

A law enforcement officer has probable cause to seize an item in plain view, without a warrant, if the item is seen from a lawful vantage point, the officer has a legal right of physical access, and the item's illegal nature is immediately apparent.

Cardwell v. Lewis, 417 U.S. 583 (1974).

When there is probable cause to believe that a vehicle has been used in a crime, and there are exigent circumstances, police may make a limited external examination of the vehicle. Vehicle must be parked on the street or otherwise subject to public view.

Harris v. U.S., 390 U.S. 234 (1968).

Objects in the plain view of a law enforcement officer, who has the right to be in the position to have that view, are subject to seizure and introduction into evidence.

Texas v. Brown, 460 U.S. 730 (1983).

A law enforcement officer may seize an object in plain view if the officer has probable cause to believe that the object is contraband or evidence of a crime. The officer does not have to be certain that the object is contraband or evidence of a crime.

Horton v. California, 496 U.S. 128 (1990).

Objects in plain view may be seized even if the discovery of the objects is not inadvertent.

Pervasive Regulation Exception

California v. Carney, 471 U.S. 386 (1985).

Persons have a reduced expectation of privacy in motor vehicles because of government's pervasive regulation of motor vehicle travel on public highways.

New York v. Class, 475 U.S. 106 (1986).

Persons have no reasonable expectation of privacy in vehicle identification number. Police can enter a vehicle to look for a VIN. VIN plays an important role in the pervasive regulation of motor vehicles.

New York v. Burger, 482 U.S. 691 (1987).

Warrantless inspections of pervasively regulated businesses are authorized. In order to justify a warrantless inspection: (1) there must be a substantial government interest, (2) warrantless inspection must be necessary to

further the government interest, and (3) there must be a certain minimum level of certainty and regularity to provide an adequate substitute for a warrant.

U.S. v. Seslar, 996 F. 2d 1058 (lOth Cir. 1993).

International Brotherhood of Teamsters v. Dept. of Transportation, 932 F. 2d 1292 (9th Cir. 1991).

U.S. v. Dominagez-Prieto, 923 F. 2d 464 (6th Cir. 1991).

Commercial trucking industry is pervasively regulated.

V-1 Oil Company v. Means, 94 F. 3d 1420 (lOth Cir. 1996).

Wyoming State Trooper stopped and inspected a commercial motor vehicle. Court found that commercial trucking industry is pervasively regulated and that Burger requirements applied. No warrant was required. Court found no 4th amendment violation.

Investigatory Stop Exception

Delaware v. Prouse, 440 U.S. 648 (1979).

Police must have reasonable suspicion to justify an investigatory traffic stop. Police cannot randomly stop motorists to check driver license or registration without reasonable suspicion.

United States v. Cortez, 449 U.S. 411 (1981).

Reasonable suspicion is based upon various objective observations and conclusions of a law enforcement officer, based upon the officer's training and experience. This information must raise a reasonable suspicion that a particular individual is engaged in wrongdoing.

United States v. Sokolow, 490 U.S. 1 (1989).

Reasonable suspicion is less than probable cause, but there must be at least a minimum level of objective justification for making an investigatory stop.

Florida v. Bostick, 501 U.S. 429 (1991).

Brown v. Texas, 443 U.S. 47 (1979).

Refusal to answer a law enforcement officer's questions does not constitute reasonable suspicion justifying an

investigatory stop.

Alabama v. White, 496 U.S. 325 (1990).

Under the totality of circumstances test, an anonymous telephone tip, corroborated by independent police investigation, provided sufficient reliability to provide reasonable suspicion for police to make an investigatory stop of defendant's vehicle.

Florida v. J.L., 529 O.S. 266, 120 S. Ct. 1375 (2000).

Applies the Alabama v. White anonymous tip analysis. An uncorroborated anonymous tip that a suspect had a gun is not enough to justify an investigatory stop and frisk.

Ornelas v. U.S., 517 U.S. 690 (1996).

Probable Cause and Reasonable Suspicion explained.
"Articulating precisely what reasonable suspicion and probable cause means is not possible. They are commonsense nontechnical conceptions that deal with the factual and practical considerations of everyday life on which reasonable and prudent men, not legal technicians act...We have described reasonable suspicion simply as a particularized and objective basis for suspecting the person stopped of criminal activity...and probable cause to search as existing where the known facts and circumstances are sufficient to warrant a man of reasonable prudence in the belief that contraband or evidence of a crime will be found...The principal components of a determination of reasonable suspicion or probable cause will be the events which occurred leading up to the stop or search, and then the decision whether these historical facts, viewed from the standpoint of an objectively reasonable police officer, amount to reasonable suspicion or to probable cause."

U.S. v. Arvizu, ___ U.S.___, No. 00-1519, 70 U.S.L.W. 4076 (2002)

Reasonable suspicion justifying a brief investigatory stop of a person or vehicle must be analyzed under the totality of circumstances test. Law enforcement officers may draw on their experiences and specialized training to make inferences and deductions about whether reasonable suspicion exists. A determination that reasonable suspicion exists need not rule out the possibility of innocent conduct.

State v. Griffin, 183 Wis. 2d 327 (Ct. App. 1994).

Absence of a license plate, or an LAF plate, constitutes reasonable suspicion sufficient to justify an investigatory

stop of a motor vehicle.

State v. Williams, 2001 WI 21, 241 Wis. 2d 631 (2001).

An anonymous telephone tip, corroborated by law enforcement officers, provided reasonable suspicion for a traffic stop. There must be evidence of the tipsters reliability, veracity, and basis of knowledge, but this can be corroborated by an officer's observation or independent investigation. The test of a citizen-informant's reliability is less strict than for a police-informant. Use the totality of circumstances test.

Search Incident to Arrest Exception

New York v. Belton, 453 U.S. 454 (1981).

During a lawful custodial arrest of the occupant of an automobile, police may, as a contemporaneous incident of that arrest, search the passenger compartment of that automobile, including the contents of any containers found within the passenger compartment. The search is restricted to the area of the suspect's custody and control.

U.S. v. Robinson, 414 U.S. 218 (1973).

Arizona v. Evans, 514 U.S. 1 (1995).

4th amdmt exclusionary rule does not require suppression of evidence gained during an arrest made on the basis of a computer record that was erroneous because of clerical mistakes by court employees.

Knowles v. Iowa, 525 U.S. 113 (1998).

Search incident to arrest exception cannot be used if driver is merely issued a traffic citation, rather than arrested.

State v. Fry, 131 Wis. 2d 153 (1986).

Police may search the locked glove compartment of a vehicle, as well as all closed containers, locked or unlocked; as part of search incident to arrest. The validity of a search incident to arrest is determined by the legality of the arrest and whether the search was limited to an area from which the defendant might gain possession of a weapon or evidentiary items.

State v. Seibel, 163 Wis. 2d 164 (1991).

Police need only "reasonable suspicion" not "probable cause" to draw blood in a search incident to arrest for a traffic accident.

State v.Bohlina, 173 Wis. 2d 529 (1993)
State v. Krajewski, 2002 WI 97, ___ Wis. 2d ___ (2002)

Police can withdraw blood without a warrant, and without the suspect's consent, to obtain evidence of intoxication from a person lawfully arrested for a drunk-driving related violation or crime. There must be a clear indication that the blood draw will produce evidence of intoxication, the blood sample must be taken by a reasonable method and in a reasonable manner, and the arrestee must present no reasonable objection to the blood draw.

Atwater v. City of Lago Vista, 531 U.S. 990 (2001).

Law enforcement officers have the authority to arrest without a warrant for minor offenses punishable only by a fine if the officer has probable cause to believe that an offense has been committed. The Court ruled that an arrest made under these circumstances does not violate the constitutional fourth amendment prohibition against unreasonable searches and seizures.

Stop and Frisk Exception

Stop and Frisk means a brief, temporary, investigative stop in a public place, based on less than probable cause. A law enforcement officer may pat down the suspect for weapons. In a routine traffic stop, an officer can pat down the driver or other occupants of the vehicle and look into the vehicle to search for weapons, if there is reasonable suspicion that persons may be armed.

Terry v. Ohio, 392 U.S. 1 (1968).

Adams v. Williams, 407 U.S. 143 (1972).

Pennsylvania v. Mimms, 434 U.S. 106 (1977).

Michigan v. Long, 463 U.S. 1032 (1983).

Maryland v. Wilson, 519 U.S. 408 (1997).

Law enforcement officer may, as a matter of course, order the passenger of a lawfully stopped vehicle to exit the vehicle. Extends Pennsylvania v. Mimms, which allowed police to order

the driver of a lawfully stopped vehicle to exit.

Illinois v. Wardlow, 528 U.S. 119 (2000)

Unprovoked flight from a law enforcement officer is a pertinent factor in determining reasonable suspicion for a stop and frisk for weapons.

State v. Morgan, 197 Wis. 2d 200 (1995).

Appropriate standards for conducting a "Terry" search for weapons. "Pat-down searches are justified when an officer has a reasonable suspicion that a suspect may be armed. The officer's reasonable suspicion must be based on 'specific and articulable facts which, taken together with rational inferences from those facts, reasonably warrant that intrusion. The test is objective...the determination of reasonableness is made in light of the totality of the circumstances known to the searching officer...an officer making a "Terry" stop need not reasonably believe that an individual is armed; rather, the test is whether the officer 'has a reasonable suspicion that a suspect may be armed.'...an officer's perception of an area as 'high-crime' can be a factor justifying a search."

State v. Griffith, 236 Wis. 2d 48, 2000 WI 72 (2000).

Police can request passengers in motor vehicles to provide identifying information, if the vehicle has been lawfully stopped.

Vehicle Inventory Exception

Law enforcement officers can search a vehicle that has been impounded to inventory the contents of the vehicle. Currently, -DSP does not authorize inventory searches.

South Dakota v. Opperman, 428 U.S. 364 (1976).

Police may seize evidence in "plain view" during an inventory search.

Colorado v. Bertine, 479 U.S. 367 (1987).

Reasonable police regulations relating to inventory procedures, administered in good faith, are necessary to satisfy the 4th amdmt.

Cady v. Dombrowski, 413 U.S. 433 (1973).

This is a vehicle impoundment and inventory case, but the court also ruled that if police have reason to believe that there is a gun in the vehicle, a search for the gun is justified because of "concern for the safety of the general public."

Drug-Sniffing Dogs

Drug-sniffing dogs can be used without a warrant, and without probable cause or reasonable suspicion. This is because the use of a trained dog, in a public place for a reasonable amount of time, is not a search under the 4th Amendment.

U.S. v. Place, 462 U.S. 696 (1983).

Edmond v. Goldsmith, 183 F.3d 659 (7th Cir. 1999).

The Good Faith Exception

When law enforcement officers obtain evidence in reasonable (good faith) reliance on a search warrant issued by an independent, neutral magistrate, the evidence should not be suppressed even if the affidavit used to obtain the warrant is defective or inadequate.

U.S. v. Leon, 468 U.S. 897 (1984).

State v Eason, ___ Wis. 2d ___ , 2001 WI 98 (2001).

Vehicle Checkpoints

Michigan Dent. of State Police v. Sitz, 496 U.S. 444 (1990).

Roadblocks and vehicle checkpoints are constitutional. Description of requirements for valid roadblocks.

United States v. Martinez-Fuerte, 428 U.S. 543 (1976).

Roadblocks designed to intercept illegal aliens found to be constitutional.

Bond v. U.S., 529 U.S. 334 1462 (2000).

Bus validly stopped at Border Patrol checkpoint. But agent~s search of luggage by manipulation and sgueezing was unreasonable.

Indianapolis v. Edmond, 531 U.S. 32 (2000).

> **A roadblock established to intercept drivers carrying drugs was unreasonable and violated the 4th amendment. The purpose behind a roadblock is critical to its legality. The roadblock in this case was not intended to protect highway safety, but to apprehend drug offenders. The roadblock would have been legal if it had been intended to discover violations of traffic laws, and was not a pretext for drug enforcement. Stopping a vehicle at a roadblock is a seizure within the meaning of the 4th amendment.**

Home Search Cases

Although the warrantless entry of a home is generally prohibited, law enforcement officers can make a valid warrantless arrest or search in a person's home if they have probable cause and exigent circumstances justify entry, or if they have consent to enter.

Payton v. New York, 445 U.S. 573 (1980).

Welsh v. Wisconsin, 466 U.S. 740 (1984).

State v. Rodgers, 119 Wis. 2d 102 (1984).

State v. Hughes, 233 Wis. 2d 280, 2000 WI 24 (2000).

State v. Richter, 235 Wis. 2d 524, 2000 WI 58 (2000).

Interrogation

Miranda v. Arizona, 384 U.S. 436 (1966)

Berkemer v. NcCarty, 468 U.S. 420 (1984).

Pennsylvania v. Bruder, 488 U.S. 9 (1988).

> **Law enforcement officers are not required to give Miranda warnings as part of a routine traffic stop. Miranda warnings are required when there is a custodial arrest and interrogation.**

Dickerson v. U.S., 530 U.S. 428 (2000).

> **Reaffirmed Miranda. The Miranda warnings are constitutional guarantees that cannot be overruled by Congress.**

U.S. v. Murray, 89 F. 3d 459 (7th Cir. 1996).

There was no custodial arrest and interrogation, even though police locked subject in the back seat of police cruiser during traffic stop.

State v. Morgan, 2002 WI App ___ , ___ Wis. 2d ___ , No. 01-2148-CR (April 4, 2002).

There was a custodial arrest and interrogation but no Miranda warnings, so the statement was suppressed. To determine whether a person is in custody, use the totality of circumstances test, including the defendant's freedom to leave, the purpose, place, and length of the interrogation, and the degree of restraint. When considering degree of restraint, consider whether the suspect is handcuffed, whether a weapon is drawn, whether a frisk is performed, whether questioning took place in a police vehicle, and the number of police officers involved.

WISCONSIN STATUTES

Chapter 110

Section 110.07, Traffic Officers, Powers and Duties

Section 110.075, Motor Vehicle Inspection

Chapter 194

Section 194.11, Inspection of premises or vehicles

Section 194.31, Inspection of records

Chapter 345

Section 345.21, Authority to Arrest With Warrant

Section 345.22, Authority to Arrest Without Warrant

Chapter 968

Section 968.10, Search and Seizures
A search of a person, object or place may be made and things may be seized when the search is made:
(1) Incident to a lawful arrest
(2) With consent
(3) Pursuant to a valid search warrant
(4) With the authority and within the scope of a right of

lawful inspection
(5) Pursuant to a search during an authorized temporary questioning
(6) As otherwise authorized by law

Sections 968.12, 968.13, 968.14, 968.15, 968.16, 968.17, 968.18, 968.19, 968.20, 968.21, 968.22, 968.23, Search Warrants

Section 968.135, Criminal Subpoenas

Section 968.24, Temporary Questioning Without Arrest
Section 968.25, Search During Temporary Questioning

Section 349.02, Police and Traffic Officers Authority (no vehicle checkpoints)

WISCONSIN ADMINISTRATIVE RULES

Chapter Trans 312, Weigh Station Stopping Requirements

Chapter Trans 325, Motor Carrier Safety Regulations

Chapter Trans 326, Motor Carrier Safety Regulations for Hazardous Materials

Chapter Trans 327, Motor Carrier Safety

FEDERAL ADMINISTRATIVE RULES

49 CFR Part 390, Motor Carrier Safety Regulations, General

Section 390.9, State and local laws

Section 390.15, Investigations and Special Studies

Section 390.31, Copies of Records or Documents

49 CFR Part 391, Qualification of Drivers

Section 391.23, Investigation and Inquiries

49 CFR Part 392, Driving of Commercial Motor Vehicles

Section 392.71, Radar detectors prohibited

49 CFR Part 393, Parts and Accessories Necessary for Safe Operation

49 CFR Part 395, Hours of Service of Drivers

Section 395.8, Driver's Record of Duty Status

Section 395.13, Drivers declared out of service

Section 395.15, Automatic On-Board Recording Devices

49 CFR Part 396, Inspection, Repair and Maintenance

Section 396.9, Inspections of Motor Vehicles

Section 396.21, Record keeping

49 CFR Part 397, Hazardous Materials

Section 397.3, State and local laws

Secondary Materials

3 and 4 Wayne LaFave, Search and Seizure, A Treatise on the Fourth Amendment, (3rd Edition 1996 and Supp. 2001)

Federal District Court for the Western District of Wisconsin

George v. Ammon, Case No. 97-C-156-S (W.D. Wisconsin)

Mr. George, a commercial truck operator, filed a lawsuit against a DSP inspector her DSP supervisors, concerning a stop and inspection in April 1996. The inspector performed a CMV inspection, and also searched the interior of the cab and sleeper compartment for toll receipts, duplicate log books, alcohol and weapons. Mr. George challenged the out-of-service order issued by the inspector and the search of the interior of his vehicle.

The court issued an order in favor of DSP on the out-of-service order issue. However, the court declined to make a decision about the search issue. Although it did not rule on the search issue, the court stated that a warrantless inspection of a CMV may be allowed under the "pervasively regulated business exception" or the "automobile exception."

Unfortunately, the court was unwilling to rule that these

exceptions applied to the sleeper compartment of a CMV without first having the facts developed at trial. The court stated that "The sleeper berth appears more a motel room or a home which cannot be searched absent consent, exigent circumstances or a warrant." Before the case went to trial, the parties settled and so the court did not make a decision on the search issue.

Appendix F: Grey, Shenequa, L. *Passive Alcohol Sensors and the Fourth Amendment*. Published in Spring 2001 Issue of *the Impaired Driving Update*,. Civic Research Institute, Inc., Kingston, New Jersey.

Passive Alcohol Sensors and the Fourth Amendment

By Shenequa L. Grey*, published in the Spring 2001 issue of *The Impaired Driving Update,* Civic Research Institute, Inc., 4478 Route 27, P.O. Box 585, Kingston, NJ 08528

As more and more police officers across the country prepare to arm themselves with the latest technology in impaired driving enforcement, many individuals and rights advocates are questioning its constitutionality. The new device is a passive alcohol sensor that helps detect impaired drivers by testing a sample of the air surrounding them to determine the presence of alcohol.[1] Since the alcohol sensor is housed inside of a flashlight (or clipboard in the daytime), drivers are unaware that the test is being administered. If the sensor indicates the presence of alcohol, the officer will continue his investigation to determine whether the driver is impaired. Based on the officer's findings, the driver may ultimately be arrested for impaired driving.

Although the constitutionality of passive alcohol sensors has yet to be addressed by appellate courts, it is likely that the use of the sensors will be upheld if courts follow well-established constitutional principals. The following is an analysis of the constitutional questions that may arise when passive alcohol sensors are used and the relevant case law addressing those issues.

Is it a search?

The Fourth Amendment of the United States Constitution protects persons from unreasonable searches and seizures. If there is no search, then no constitutional right has been implicated. In determining whether there has been a search, courts must first

determine if a person has an expectation of privacy and, second, if that expectation is one that society is prepared to recognize as reasonable.[2] Courts must also look to whether the interest that the person seeks to protect has actually been kept private or whether that person in ordinary society could maintain the privacy he claims. What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.[3]

With passive alcohol sensors, the interest a person would arguably be trying to protect is his breath. Therefore, in order for the use of the passive alcohol sensor to be a search, the individual must have an actual and reasonable expectation that his breath would be kept private. In today's society, is there such an expectation, and if so, is it reasonable?

"Plain Smell" Doctrine

It is well established that under certain circumstances police may seize evidence in plain view without a warrant.[4] The plain view doctrine "applies to 'all sensory impressions' gained by an officer who is legally present in the position from which he gains them."[5] The underlying theory of this doctrine is that there cannot truly be a reasonable expectation of privacy in something that is openly displayed to the public. Therefore, in accordance with Katz, the discovery of evidence that is subject to public perception would not be a Fourth Amendment search.

The first requirement of the plain view doctrine is that the officer must be where he has a right to be. "The doctrine serves to supplement the prior justification – whether it be . . . hot pursuit . . . or some other legitimate reason for being present unconnected with a search directed against the accused."[6] Passive alcohol sensors do not violate this first requirement as long as law enforcement was justified in making the traffic stop. Once a lawful traffic stop is made, either because of a traffic violation or a sobriety checkpoint, an officer has a right to be at the driver's side window of the vehicle.

Although the officer may be where he has a right to be, the plain view doctrine also requires that it be immediately apparent that what is before him is evidence of a crime. The smell of alcohol is quite

distinct and has historically been relied upon by officers in making the determination that the driver of a vehicle has been drinking. The smell of alcohol through a passive alcohol sensor does not change the nature of this evidence. In fact, because the passive alcohol sensor is potentially more accurate than the human nose, the police officer is even more justified in believing that the driver has been drinking than he otherwise would have been had he relied exclusively on his own nose alone.

Finally, discovery of the evidence must be inadvertent. While this theory precludes probing, an officer may aggressively use his senses. In U.S. v. Johnson,[7] the United States Court of Appeals for the Ninth Circuit rejected the defendant's argument that he had a reasonable expectation of privacy from drug agents with "inquisitive nostrils." The court found that suitcase sniffing, whether the officer is bending down or standing up, is not a search within the meaning of the Fourth Amendment. Similarly, the passive alcohol sensor enables the officer to detect the presence of alcohol by doing nothing more than what officers routinely do themselves anyway – they sniff the air around the driver. The passive alcohol sensor merely does it in a more objective and enhanced manner, with no added intrusion on the driver.

Other Sense Enhancing Devices

The United States Supreme Court and a number of United States Circuit Courts have upheld the use of sense-enhancing mechanical instruments as not being violative of the Fourth Amendment. For instance, in upholding the use of an electronic homing device, the Supreme Court held, "nothing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them in this case."[8] In addition, the United States Court of Appeals for the Ninth Circuit has held:

> Permissible techniques of surveillance include more than the five senses of officers and their unaided physical abilities. Binoculars, dogs that track and sniff out contraband, searchlights, fluorescent powders, automobiles and airplanes, burglar alarms, radar

devices, and bait money contribute to surveillance without violation of the Fourth Amendment in the usual case.[9]

Thus, the use of technology to enhance government surveillance does not necessarily turn permissible non-intrusive observation into an impermissible search.[10] Similarly, the use of the passive alcohol sensor, which is non-intrusive and merely a mechanical instrument that enhances an officer's own sense of smell, does not constitute a search.

Sniffing Dogs

Similar to the concept of passive alcohol sensors is the use of sniffing dogs. In *United States v. Bronstein* the United States Court of Appeals for the Second Circuit upheld the use of sniffing dogs, stating, "[i]t has often been held that the use of certain 'sense-enhancing' instruments to aid in the detection of contraband, etc., does not constitute an impermissible Fourth Amendment search."[11]

In *Bronstein*, the court quickly disposed of the fact that it was a dog, not the officer, who perceived the plain smell, and that a dog's sense of smell is more sophisticated than a human's. The underlying principle is that the object of the intrusion is something that could be perceived by the human senses even though it is not the human nose actually detecting it, but a more sensitive nose. The passive alcohol sensor is nothing more than an objective and enhanced means of doing what officers have always done in the detection of alcohol. The passive alcohol sensor simply enables them to do it in a much more efficient and reliable manner.

Although sniffing dogs may be reliable, questions have been raised about the level of intrusiveness and intimidation inherent in a dog sniffing a human.[12] These questions simply do not arise with the use of passive alcohol sensors. The passive alcohol sensor is neither intrusive nor invasive. Furthermore, drivers are not intimidated by the device because they are unaware it is taking place. Therefore, the passive alcohol sensor should be upheld as merely an enhancement of the human sense of smell that effectively detects the presence of alcohol.

Appearance / Demeanor

Does a person have a right to protect personal physical characteristics or mannerisms from official scrutiny?[13] A person's breath is not unlike one's facial features, voice, handwriting or even fingerprints – they are all openly displayed to the public with no reasonable expectation that they would remain private. In finding that there was no reasonable expectation of privacy in one's voice or face, the United States Supreme Court in *United States v. Dionisio* held:

> The physical characteristics of a person's voice, its tone and manner, as opposed to the specific content of the conversation, are constantly exposed to the public. Like a man's facial characteristics, or handwriting, his voice is repeatedly produced for others to hear. No person can have a reasonable expectation that others will not know the sound of his voice, any more than he can reasonably expect that his face will be a mystery to the world.[14]

Similarly, a person could not reasonably expect that his breath would remain private. It is constantly exposed to the public. While a person must breathe in order to live, he is not compelled to position himself in the near presence of others or to drive on a public road where he might be stopped for a traffic infraction or sobriety checkpoint. Furthermore, when a person does expose himself to the public, he also exposes himself to the government. The court in *Dionisio* addressed this point, stating:

> Except for the rare recluse who chooses to live his life in complete solitude, in our daily lives we constantly speak and write, . . . the underlying identifying characteristics – the constant factor throughout both public and private communications – are open for all to see or hear. There is no basis for constructing a wall of privacy [that] does not exist in casual contacts

> with strangers. Hence no intrusion into an individual's privacy results from compelled execution of handwriting or voice exemplars.[15]

Following the logic of *Dionisio,* taking a sample of a person's breath is not a search within the meaning of the Fourth Amendment. There can be no reasonable expectation of privacy in one's breath. It is repeatedly exposed to the public and its exposure cannot realistically be limited. The government cannot be any more limited in accessing one's breath than any stranger on the street would be.

If it is a search, is it reasonable?

The Fourth Amendment of the United States Constitution does not prohibit all searches; rather, it prohibits unreasonable searches. In determining whether a search is reasonable, the courts apply a balancing test. The permissibility of a particular law enforcement practice is judged by balancing its intrusion on the individual's Fourth Amendment protections against the government's promotion of a legitimate governmental interest.[16]

The interest promoted by the government's use of passive alcohol sensors is to deter and apprehend drivers who are impaired by alcohol. Studies show that over 39% of all traffic fatalities are alcohol-related and that each year, more than 300,000 people are either killed or injured in alcohol related crashes – an average of one every two minutes.[17] According to a National Highway Traffic Safety Administration (NHTSA) study, one of the problems in DWI enforcement is that many impaired drivers go either undetected or unpunished.[18]

The government has a compelling interest in reducing the amount of impaired drivers and in saving thousands of lives that are lost as a result of these crashes. The passive alcohol sensor enables officers to identify many of those drivers who might have otherwise gone undetected. Detecting impaired drivers could ultimately reduce the number of highway crashes as well as deaths. This compelling governmental interest significantly outweighs any minimal intrusion on an individual's privacy rights when a passive alcohol sensor is used.

Use of a passive alcohol sensor does not require participation by the driver. The driver does not have to leave the vehicle nor ordered to blow or take a deep breath. In fact, the driver does not have to do anything that he would not have had to do if the sensor were not being used. Furthermore, since the officer can quickly make a determination from the air surrounding the driver, the driver may be readily allowed to continue on his way if there is no alcohol detected. Such a stop would be no more time-consuming than a stop where no passive alcohol sensor is used. Since the government has a compelling state interest in detecting impaired drivers and this interest significantly outweighs the intrusion on the driver, the passive alcohol sensor is reasonable and should be upheld as a constitutional means of detecting the presence of alcohol even if it is determined to be a search within the meaning of the Fourth Amendment.

The use of passive alcohol sensors can be an effective tool in the fight against impaired driving. Because our breath is constantly exposed to the public, detecting the presence of alcohol through the use of a passive alcohol sensor does not amount to a search. Even if these sensors are deemed to constitute a search, the intrusion is minimal, and thus reasonable. Under either analysis, the use of passive alcohol sensors is a constitutionally permissible means of detecting the presence of alcohol, and their use will likely be upheld should the courts follow well-established case law addressing similar Fourth Amendment issues.

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[1] See P.A.S.TM III (“Sniffer”), www.sniffalcohol.com.

[2] *Katz v. United States*, 389 U.S. 347, 361 (1967).

[3] *Id.* at 351.

[4] *Coolidge v. New Hampshire*, 403 U.S. 443, 465 (1971).

[5] *U.S. v. Fuentes*, 379 F.Supp. 1145, 1153 (Tex. 1974) (emphasis added). See also United States v. Leazar, 460 F.2d 982 (9th Cir. 1972); United States v. Perry, 339 F.Supp. 209 (D.C. 1972).

[6] *Id.* at 466.

[7] 497 F.2d 397 (9th Cir. 1974).

[8i] *United States v. Knotts*, 460 U.S. 276, 282 (1983).

[9] *United States v. Dubrovsky*, 581 F.2d 208, 211 (9th Cir, 1978).

[10] *Id. See also Dow Chemical v. United States*, 476 U.S. 227 (1986).

[11] *United States v. Bronstein*, 521 F.2d 459, 462-63 (2d Cir. 1975); see also United States v. Minton, 488 F.2d 37, 38 (4th Cir. 1973) (use of binoculars); Doe v. Renfrow, 451 U.S. 1022 (1981) (use of drug sniffing dogs in a school-wide search of students and their belongings).

[12] *See Doe v. Renfrow*, 451 U.S. 1022 (1981) (Brennen, J., dissenting).

[13] *See United States v. Dionisio*, 410 U.S. 1 (1973). *See also United States. v. Mara*, 410 U.S. 19, 21 (1972); *Davis v. Mississippi*, 394 U.S. 721 (1969).

[14] *Id.* at 14.

[15] *Id., citing United States v. Doe*, 457 F.2d 895, 898-99 (1972).

[16] *Delaware v. Prouse*, 440 U.S. 648, 654; (1979). *See also United States v. Martinez-Fuerte*, 428 U.S. 543 (1976); *United States v. Brignoni-Ponce*, 422 U.S. 873, 878 (1975); *Terry v. Ohio*, 392 U.S. 1, 20-21 (1968).

[17] U.S. Department of Transportation, National Highway Traffic Safety Administration, Traffic Safety Facts 1999: Alcohol

[18] Jones, et al., Highway Traffic Safety Administration U.S. Department of Transportation, Problems and Solutions in DWI Enforcement Systems, (January 1998)

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